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FAIR VALUE—ECONOMIC AND LEGAL PRINCIPLES

BY
HEISKELL BRYAN WHALING

A THESIS SUBMITTED FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
THE UNIVERSITY OF WISCONSIN
1915

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FAIR VALUE—ECONOMIC AND LEGAL PRINCIPLES

CHAPTER I

THE THEORY OF FAIR VALUE

The Problem of Fair Value: A Synthesis of the Social and Private Points of View With Respect to Wealth

Those things and services which have utility and which are scarce, and only those, are classed as wealth. By utility is meant the power to satisfy a human want. By scarcity is meant insufficiency to satisfy wants. Wealth, therefore, includes those things and services which are wanted by human beings and which exist in quantities less than sufficient to satisfy all want for them.

The objects of wants are called goods. In the concept of goods, there is no implication of benefit, legality or moral quality. Whiskey, a burglar's jimmy, and the assassin's bomb, are goods as well as clothes and bread, for they all satisfy wants.

With respect to wealth, there are two points of view, namely, the social and the private. The former is the point of view of a sovereign group of people; the latter is the point of view of a member of the group.

The social and private points of view with respect to wealth are antithetical. On the one hand, it concerns society to increase the stock of goods which promote social well-being, to abolish the production of goods which are detrimental to its welfare, and to secure a fair distribution of wealth among its members. On the other hand, the individual desires to increase the relative amount of wealth under his control. The individual does not think in terms of the social effects of goods, nor in terms of fair distribution; he thinks in terms of acquisition. The opium trade, the saloon, the sale of wild-cat securities, the existence of monopoly surpluses, and the prevalence of demarcation disputes between trade unions, are abundant evidence of this fact. It is true that, in order to acquire wealth, the individual may subserve social interest by creating beneficial goods, but the result and the purpose must be sharply differentiated. Acquisition is the goal of individual activity; the production of socially beneficial goods and fair distribution are the goals of social activity. With respect to wealth, therefore, a conflict of interest exists between the individual and society.

The bases of this conflict of interest between the individual and society are the scarcity of goods and the dominance of self-interest as an economic motive. It is obvious that there could be no antagonism of interest if all goods were plentiful. But most goods are scarce, which means that not all people can have what they want of them. Even this would not cause a conflict of interest if altruism were to supplant self-interest as an economic motive, for then no individual would be content not to contribute to the welfare of other individuals and to the welfare of the group. But since most goods are not plentiful, and since self-interest is the principal economic motive, the conflict of interest between the individual and society prevails.

This antagonism of interest is fundamental. Goods will always be scarce for two reasons: first, because it requires effort to produce them, and second, because of the expansibility of human wants. Whether or not altruism will ever replace self-interest as an economic motive is a matter of speculation. Certain it is, however, that such a transformation in human nature will not take place rapidly.

Any theory, therefore, which is worth while in the solution of economic problems must posit the fundamental nature of this conflict of interest. We may wish that goods were plentiful. We may regret the fact that altruism is not the sole economic motive. But wishes and regrets will not change the facts. Consequently, if we desire to develop a workable theory, we must assume that goods are scarce and that self-interest is the primary economic motive.

In the theory of fair value, we seek to synthesize the social and private points of view with respect to wealth. The principle of diminishing sensation, or reaction to external stimuli, furnished the basis for a synthesis of the antithesis between value and utility. In like manner, institutional principles furnish the bases for a synthesis of the private and social points of view with respect to wealth. That the unifying principles are found in institutional laws is a result of the nature of value and of the laws governing its determination.

THE NATURE OF VALUE AND THE LAWS GOVERNING ITS DETERMINATION

Value is power in exchange. For instance, one bushel of wheat may command in exchange two bushels of oats, or ten bushels of wheat may command the services of a lawyer or doctor. These things have value. An ordinary pebble, however, commands nothing in exchange. It has no value. As a result of this, wheat and oats will be raised, men will devote time and effort to acquiring a knowledge of law or medicine, but nobody will gather pebbles. Value, therefore, connotes control over human conduct. It is the power to direct human enterprise and to shape human choices.

But the value a thing has may not be identical with the value it should have. To explain the former is to establish a theory of value; to explain the latter is to establish a theory of fair value. We cannot, however, develop a theory of fair value without a clear understanding of the principles that govern the determination of value.

The fundamental factors in the determination of value may be grouped under three heads: (1) human nature, (2) natural conditions and laws, and (3) social institutions. These are the factors that are immediately operative in the fixation of value. In the long run, education, in so far as it changes human nature, is effective in value determination. Also, government authority, in as much as it may change social institutions, such as property, inheritance, contract, etc., is a determinant. This preliminary statement needs some elaboration.

The well-known supply and demand analysis offers the most satisfactory means of explaining value. Differences in personal wealth and the law of diminishing utility enable us to construct potential demand curves for all items of wealth. A potential demand curve indicates the relation between the value of a unit of a good and the number of units of the good that would exchange at that value. In other words, it indicates the power in exchange of a unit of a given amount of a good.

For the same person, this power in exchange of a unit of a good varies with any change in the status of that person's wants. It varies with fashion, whim, travel, education, and new experiences of all sorts, for these experiences change the relative importance of wants and, therefore, of goods. It also varies with differences in individual income, for the status of want and satisfaction depends not on the total amount of wealth in society, but upon the manner of its distribution among the members of the group. Nobody estimates bread, for instance, according to the amount of it in existence, but according to the amount of it he has, which, obviously, depends on his general means. Personal distribution is, therefore, of equal importance with psychical principles in the determination of potential demands. For different persons, power in exchange varies with taste, habits, saving instincts, human relationships, and many other things.

Moreover, the values of goods are so closely related that a change in the value of one is likely to affect the value of all others, for every person tends to keep his wants in a state of equilibrium with respect to all goods. A fall in the value of one good is not, therefore, accompanied by a corresponding increase in the demand for that good, but by a general increase in the demand for all other goods.

But none the less, at any particular time, a potential demand curve for any good indicates the precise condition of want with respect to that good, or the power in exchange of a unit of a given amount of the good. At any time, the value of a unit of a good varies inversely with the amount of it. If the amount of the good increases, value falls; if the amount decreases, value rises.

This leads us to discuss supply. Differences in natural laws and conditions result in very different conditions of supply. In some cases, physical relations are such as to result in supply under conditions of natural monopoly. Despite the efforts of man to prevent it, natural monopoly exists, and for the simple reason that natural laws are more potent than legislative enactments. Professor Ely has stated, cogently enough, the law of natural monopoly.[1]

> "Whenever there is a decided increment in gain resulting from combination, we have a tendency to monopoly which will overcome all obstacles. This increment of gain, which is the cause of monopoly, is always present in businesses that occupy peculiarly favorable spots or lines of land, and that furnish services or commodities which must be used in connection with the plant."

In other cases, no increment of gain results from exclusive control, and competitive conditions prevail. This is the case with businesses in which the point of maximum efficiency is reached in relatively small units. Such businesses are naturally competitive.

One difference between naturally competitive businesses and naturally monopolistic businesses lies in the extent to which the law of increasing returns, or decreasing costs, is operative. Since there are all degrees of effective play of this law, between businesses which are naturally competitive and businesses which are naturally monopolistic lie some businesses which are in neither category. There is always a tendency to monopoly through agreement in this field, but the fluidity of capital funds undermines the stability of such control.

Under competitive conditions, the supply of any good is adjusted to the demand for that good in such a manner as to establish a value which normally just covers marginal expenses of production. Expenses of production include wages, interest and necessary profits. True enough, in the case of competitive businesses subject to the law of decreasing costs, there accrues a temporary differential return to the supra-marginal business unit; and to businesses subject to the law of increasing costs, there accrues a permanent differential return to the supra-marginal business unit. The former is true of all competitive mercantile and manufacturing plants, and is due to superior business ability, or to ignorance and inertia; the latter is true of agricultural and urban lands, and is due to the peculiar limitation of the supply of these economic agents. But, whatever may be true above the margin, it is quite true that value must normally cover expenses of production on the margin. If it does not, the supply will not be forthcoming; if it does more than this, the supply will be increased, and the value will fall. Under competition, then, value tends to equal marginal expenses of production.

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[1] Ely, R. T., *Outlines of Economics*, 1915 ed., p. 196.

Under conditions of natural monopoly, value tends to the point of highest net return. It, therefore, bears no relation to expenses of production other than the use of that element in determining the point of maximum profits. This is true because the monopolist controls the supply and may adjust it to the demand to suit his personal interest. If the demand for a monopolized good were highly elastic, value would just cover expenses of production. However, most goods produced under conditions of natural monopoly are, to a greater or less extent, necessaries, the demand for which is inelastic. That is to say, about as much will be wanted when the value is high as when the value is low. Monopoly value, therefore, tends to be considerably above expense of production.

In the fields of business which are neither naturally competitive nor naturally monopolistic, value is liable to wide fluctuations, although this is not a necessary result. If monopoly is established through agreement, two policies are open: first, value may be fixed so as to just cover expenses of production, or second, the monopoly principle of value may be applied. In the latter case, profits will be large for a time, but competition will be induced, which will result in a productive capacity in excess of probable demand. The inevitable result is destructive competition with value, for a while, below expenses of production.

So far in the analysis of value, we have assumed the existence of institutions, such as property, inheritance, contract and personal liberty. These institutions are fundamental in the determination of value. In general, it may be said that competition and monopoly can operate only under the conditions imposed upon them by the fundamental socio-economic institutions. In so far as society puts limitations on the right of private property, the right of inheritance, and the right of contract and personal rights, it changes the effective operation of competition and monopoly, and thus alters value. A more specific statement of the relation between institutions and value is requisite.

In the first place: the role of personal distribution in the determination of value has been alluded to; personal distribution is of equal importance with psychical principles in shaping potential demand curves. The income of any individual depends on his relative efficiency as a laborer or entrepreneur and on the amount of income-bearing property that he owns. This property may have been acquired through the individual's efforts in competitive fields, through the ownership of land, through the special advantages incident to monopoly position, through inheritance, through gambling, or in any other way. If we accept Cairnes' theory of non-competing groups, we must also recognize the influence of institutions in keeping the majority of people in the class in which they happen to be born, and thus in preventing the full play of personal ability. But, whatever may be the relative strength of the two factors, it is evident that personal income is a function of two variables, namely, personal ability and institutions. Whatever society may be able to do through eugenics to improve personal efficiency, or through education to give free play to personal ability, it is certain that social control of the institutions under which wealth is acquired may alter personal distribution and thus influence value.

In the second place: the use or misuse of institutions may result in monopoly or in fostering monopoly. Such monopolies may be called institutional monopolies in contradistinction with natural monopolies. Professor Ely classifies them as social monopolies[2] and includes in the classification (1) general welfare monopolies, or those arising from patents, copyrights, trade-marks, fiscal needs and sumptuary legislation, and (2) special privilege monopolies, or those arising from public favoritism, such as tariff legislation, and those arising from private favoritism, such as rebates.

To these may be added those partial monopolies which arise from practices which restrict competition. Among these practices are the use of factors' agreements, the use of exclusive contracts, the use of collateral patent agreements, etc. But whatever may be the particular cause of one of these institutional monopolies, it is evident that they are effective in value determination. It is equally evident that society may control institutions so as to make or unmake them. For instance, contract may be defined so as to exclude all unreasonable agreements in restraint of competition, or personal liberty may be defined so as to deny an individual the right to accept a rebate. Thus society may control value.

The method of social control of value so far outlined consists in direct institutional definition. That is to say, it consists in the direct determination of the conditions under which value is determined. There is another method available. Society may directly fix value or price.

It is clear that the first method is preferable in the case of competitive businesses; the second, in the case of natural monopolies. Either of the two may be used in the case of institutional monopolies, depending on whether the monopoly ought to be destroyed or maintained.

The laws governing the determination of value preclude other methods of control. Value is a complex result of a number of widely different causes. In so far as it depends on natural conditions and laws, society can have no control over it. The state cannot control psychical principles, although it may change the individual's attitude toward the acquisition and use of wealth in such a manner as to affect value. This is the function of education. But the institutional factors in the determination of value can be controlled, and it is in this direction, then, that we must seek the principles which synthesize the social and private points of view with respect to wealth.

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[2] Ely, R. T., *Outlines of Economics*, 1915 ed., p. 194.

We would not minimize the function of education. By means of it, the state, undoubtedly, can do a great deal to engender proper notions of the use of wealth. In so far as this is possible, it simplifies the problem of institutional control. The problem remains, however, as long as self-interest is the dominant economic motive. Immediately, then, institutional definition is the feasible means by which society can control the economic conduct of its members so as to secure social welfare.

THE DEFINITION OF FAIR VALUE

The relation between personal distribution and value furnishes the basis for a definition of fair value. Value is the power that a good has in exchange. Fair value is the power that a good ought to have in exchange. The power in exchange that a good ought to have depends on the social consequences of that power. If the result is to direct human enterprise and to influence human choices so as to promote social well-being, value is fair. Since society is composed of individuals, this result depends on the manner in which wealth is distributed among the members of the group. If, therefore, wealth is distributed among the members of society so as to secure social well-being, value is fair.

Consequently, the problem of fair value may be summed up in the question, What sort of personal distribution will promote group welfare? The answer to this question depends on the nature of society and of social purpose.

THE NATURE OF SOCIETY AND OF SOCIAL PURPOSE

In the main, the Classical School experienced no difficulty in synthesizing the social and private points of view with respect to wealth. That School held an implied social contract theory of society, and identified social wealth with the sum total of individual wealth. The social organism theorists, whether of the crude biological or the more refined psychological type, dodge the whole question, for they either submerge the individual or consider him a toy in the hands of social processes.

We conceive society to be a "summation of those parts of individual consciousnesses which are alike."[3] Instinct, imitation and conscious cooperation are elements in determining like consciousnesses. The first two elements arise from psychology and environment; the last one, from rational awareness of common interest. Differences in individuals are recognized, whether innate or acquired differences in efficiency, or acquired differences in wealth. Under this theory, necessary differences may be adjusted in the interest of the group. Consequently, social and private interests are capable of being synthesized. We may, then, develop a conscious social policy which is made effective through organized social machinery or government.

What of social purpose? Is economic welfare measured in terms of consumption, production, distribution? Or is it measured in terms of social strength? Obviously, production, as such, cannot be the criterion of economic welfare, for production will be controlled by the purpose for which it is carried on. Likewise, distribution, *per se,* cannot be the criterion of economic well-being, for there must be some criterion of distribution. Is the object of economic endeavor, then, to secure maximum enjoyment from wealth, or is it to use wealth so as to increase the power of a group to survive? In other words, is the primary purpose of a state to enjoy itself or to live?

It is unquestionably true that modern economic thought assumes the latter. We hear less now than formerly of the economy of happiness, of pleasure as the end and aim of economic endeavor. A social philosophy of pleasure, or consumption, is, at best, enervating in its effect; a philosophy of social strength is far more wholesome. The former leads with certainty to individual and national decay and must, therefore, be discarded. To live, to grow strong, is the primary purpose of a state. Consequently, it must encourage those forms of economic activity which give it strength, and it must destroy those forms of economic endeavor which weaken it.

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[3] Haney, L. H., *The Social Point of View in Economics* in *Quarterly Journal of Economics,* Nov. 1913, p. 115.

THE WAY OF SOCIAL STRENGTH

The way of national strength is conservation of human and natural resources. There is nothing more certain than the fact that society weakens itself when it permits human power to go to waste either in idleness or in the mere acquisition of wealth. It is equally certain that the way to stop this waste of human power is to lay down the law of personal productivity distribution: only those persons who produce wealth may have it, and they may have it in precisely the proportion in which they produce it. If this is the only way in which individuals can acquire wealth, they will acquire it in this way, and thus will society secure the maximum economy of its human resources. In other words, self-interest, in striving to satisfy its own desires, will necessarily promote the well-being of the group.

Capital is a means of conserving human power by increasing the productivity of man's efforts to utilize natural resources. Under the law of personal productivity distribution, the amount of capital that an individual could accumulate would depend on his productive efficiency and on his productive saving. Thus capital would come into the hands of those individuals most capable of using it, and thus would society secure the maximum economy both of its human productive power and of its natural resources.

But property in natural resources must be defined so as to prevent waste. Wasteful exploitation is not social production. It merely results in enriching the individual at the expense of the group, and this is precisely what society must eliminate. Society must see to it that the individual prospers economically in exactly the proportion in which he makes additions to national strength.

Likewise, society must define production so as to suppress the manufacture and sale of those goods which lower the mental and physical efficiency of its members. For instance, from the private point of view, making liquors for beverage purposes is production, for liquors have utility and they are scarce. The results of using them, however, are vicious. Human power is not conserved. Consequently, from the social point of view, brewing and distilling liquors are not productive enterprises.

There can be no doubt of the fact that production ought to be defined in terms of social strength, and not in terms of consumers' satisfaction or individual interest. The farmer who permits weeds to grow on his farm does not prosper, nor does he improve his possession if he skims the soil. In like manner, society cannot grow strong if it permits the existence of harmful commodities or the wasteful exploitation of its natural resources.

This position is not always accepted. The term personal liberty is an implicit protest against it, for personal liberty assumes that the purpose of society is to enjoy itself, and that an individual may do what he pleases with that which he owns. Personal discipline, therefore, is the more satisfactory term in social economics, for it connotes that the purpose of a state is to live, to grow strong, and it recognizes the necessity of defining production in terms of group well-being.

There are two methods, then, of conserving human power and natural resources, namely, by establishing the law of personal productivity distribution and by defining production so as to exclude wasteful exploitation and the making of harmful commodities. Both of these methods may be made effective through institutional definition. Henceforth, we may assume production defined as indicated. This leaves the question: Under what conditions would personal distribution be in proportion to personal efficiency?

PERSONAL PRODUCTIVITY DISTRIBUTION

Under conditions of equal opportunity to produce, the most efficient producers would control industry. This class of enterprisers would control business for the reason that its members would be able to make the most effective appeal to the self-interest of buyers. Moreover, in proportion to the effectiveness of the appeal to buyers would producers profit economically. That is to say, distribution would be proportionately related to personal productivity. Consequently, the state may establish the law of personal efficiency distribution by doing away with all those things which stand in the way of equality of opportunity.

In order to do this it is necessary to make many institutional changes. To what extent this ought to be done depends on the effect of the necessary changes on productive effort. In so far as there is an appeal to productive endeavor inherent in such institutions as property, contract, inheritance, etc., they promote social welfare, and should not be molested. We may leave this problem until we come to discuss property in land and inheritance.[4]

The position we have taken does not imply the annihilation of humanitarian or utilitarian considerations. The elimination of the economically weak is an economic necessity. The treatment of the present unfit is a matter of social concern undoubtedly, but not one that should be perpetuated by making need or sacrifice the basis of distribution. To make itself strong, a state must encourage its most useful members by rewarding them according to the degree to which they promote economic well-being. To do otherwise is to encourage weakness and does not promote the ultimate welfare of the individual. Any system which promotes the ultimate well-being of men cannot be called inhumane.[5]

FAIR VALUE AND EXISTING COMPETITION

Under competition, distribution is in proportion to factor productivity. The factors in production are human effort, land, and capital. Human effort is the recipient of wages and profits, land yields rent, capital draws interest. Consequently, a person's income depends on his relative efficiency as a producer and on the amount of land and capital that he owns.

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[4] *Infra*, pp. 20 and 22.

[5] International or inter-society relations raise the question of group survival. Is the doctrine of equal opportunity to have a cosmopolitan application? Clearly not, for the prime purpose of a society is to live. We may illustrate with immigration. Laws which permit unrestricted immigration merely shift from one group to another the care of the economically unfit. To the extent that this is permitted a group weakens itself. As a general rule, immigration should be restricted with reference to all classes in which income is inadequate. Nor is there anything humane about unrestricted immigration. It certainly cannot be called humane to visit the calamities of foreign indiscretion in propagation on the heads of the more discreet members of another society. We may illustrate again with the tariff. A tariff which merely contravenes the working of the law of comparative costs cannot be supported. But a tariff which prevents the importation of harmful goods conserves social strength, and a tariff which insures the production of commodities necessary in time of war is beneficial.

In so far as income depends on personal productive power it is fair; in so far as property has been acquired as a result of personal ability of a productive sort that also is fair, and the income received from it is fair. In so far as property has been acquired in any other way, it has been unfairly accumulated, and the income it yields is unfair. Thus competitive value, as now determined, is not fair value. It can be made so only by eliminating all the unfair methods of securing property.

Property may be accumulated unfairly in the following ways: (1) through fraudulent competition, (2) through monopoly, not purposely maintained for social purposes, (3) through unreasonable ownership of land, (4) through undue inheritance, and (5) through uneconomic wage contracts.

Property and Fraudulent Competition

It is obviously impossible to say anything about the value of a good unless the quality of the good is known. The doctrine of marginal estimates, or price offers, becomes meaningless unless the good estimated is what it purports to be. With the separation of producer and consumer and the growing division of labor, it is impossible for the consumer to know the quality of commodities. Therefore, various service regulations are necessary. The object of these limitations on the right of private property is not to tell a person what to buy, but to tell him what is being bought. Consequently, we have pure food laws, standard weights and measures acts, enactments to secure financial responsibility in the case of fiduciary institutions, blue sky laws, and publicity requirements in the instance of corporate securities, and many others. All forms of fraudulent goods and careless services must be eliminated before we can talk of fair value. Fair value thus implies equal opportunity to purchase.

There can be no approximation of equality of opportunity if fraudulent competition is permitted. Productive efficiency means nothing except as we compare two producers of the same goods, or substitutes, of known quality. If one enterpriser drives another from the field by lowering the quality of products, all concepts of fair value are distorted. In a simple economic system, competition may result in improved quality at lower prices but in a complex system property definition of a restrictive sort is necessary.

PROPERTY AND MONOPOLY

We will consider natural monopolies first. It has been pointed out that monopoly price is fixed so as to yield the highest net return. Ordinarily, there accrues to the monopolist a surplus above competitive profits. Since this surplus is due to exclusive position, and not to personal productivity, it is an unfair income.

Put otherwise, the monopolist withholds supply in order to secure maximum profits. For instance, he may be able to make a legitimate profit by selling 100,000 units of supply at $5 a unit. But he may be able to make a greater profit by putting out only 50,000 units at $20 a unit. In so far as output is thus limited, human effort is forced into less productive fields. As a result of this, the state fails to get the maximum return from its resources.

Society, however, may remedy this condition by fixing the prices at which monopolized goods are sold. For example, price may be fixed so as to eliminate the surplus which appears when only 50,000 units are produced. If this is done, the monopolist can increase his personal income only by enlarging the plant, and this he will do. This means the maximum economy of productive agents.

Of institutional monopolies, there are two kinds, namely, those which conserve social interest, and those which do not conserve social interest. In the first group are institutional monopolies arising from patents, copyrights, trade marks, etc. Patents are granted on the ground that they encourage invention, which in turn, increases the productivity of labor. With proper limits as to the time for which the patent may run, therefore, the patent monopoly is economic. Copyrights stimulate authorship. Despite the waste in advertising brands, trade-marks make so strong an appeal to productive effort that there is good ground for them. The mintage monopoly in the hands of government is beneficial, for a sound monetary system is fundamental in the productive process.

In the fields of business in which destructive competition is likely to occur, monopoly through agreement may prevent much waste of capital. Such monopolies should be definitely legalized and supervised.

In the second group are institutional monopolies arising from public favoritism, private favoritism, and unfair competitive practices of all sorts. These monopolies do not serve any useful purpose. There can be no justification for special tariff provisions which merely foster monopoly. It is impossible to defend favors granted by natural monopolies, such as railway rebates, or privileges given by institutional monopolies, such as collateral patent agreements. Unreasonable factors' agreements, local price cutting, and a host of other competitive practices are without economic foundation. All these things are subversive of the principles of equal opportunity.

Since these monopolies are based on institutions, society may reshape the institutions in such a way as to destroy them. A scientific adjustment of the tariff would break up tariff-made monopolies. The revocation of patents is a common way of dealing with uneconomic collateral agreements. Local price cutting may be prevented by providing that prices may not differ by more than the cost of transportation. All these things should be done.

Property in Land

The primary difference between competitively determined values and monopolistically determined values rests in the fact of supply limitation. It matters not whether there is a natural or an artificial limitation on production. Under competition, free reproducibility is the rule, and production is carried to the point where value normally equals expenses of production on the margin. In the case of monopoly, free reproducibility does not prevail and value may be far above expenses of production. In the case of land, also, free reproducibility is absent. We have now to inquire into the effect of this fact on personal distribution.

From the private point of view, since the normal return to investment in land cannot differ from the normal return to other competitive investments of a similar degree of risk, there is no such thing as an unearned increment from land. There are, of course, extraordinary gains in some cases, and there are large losses, but these occur in all competitive fields, so that land does not differ in economic significance from other investment opportunities.

From the social point of view, the whole affair looks different. Mere ownership of land, and the consequent receipt of rent, is not in accord with the doctrine of personal productivity distribution. Under accepted theories of margins, a competitive producer can increase his income only by lowering marginal expenses of production, and this conserves social interest. But rent is price determined, and rents rise only with the increase in marginal expenses. This rent surplus is not a monopoly return, but a differential income which depends on the peculiar nature of land supply, namely, its fixed amount. It is unlike differential returns which may accrue to capital and ability in that it is permanent. Thus it effectually makes impossible distribution in proportion to personal productivity.

Moreover, although rent does not enter directly into price, nevertheless, it is true that the public receipt of rent would lower prices. If all rent accrued to society, taxes could be lowered. Since taxes are expenses of production, the removal of such expenses would lessen marginal expenses of production.

One should not, however, conclude that public ownership of land is desirable. It is not. In the first place, public ownership would necessitate some sort of leasing system. This would involve much friction and more expense. In fact, it is quite possible that the expense of administering a leasing system, in a country of any extent, would entirely offset the advantages of public control. This consideration would apply more forcibly to agricultural lands than to urban lands where the limited areas would greatly lessen the relative expense.

More fundamental, however, is the psychology of land ownership. A comparison of tenant cultivation with ownership cultivation will inevitably lead to the conclusion that private ownership is economically desirable. Moreover, the integrity of the family requires some private ownership of land.[6]

Thus, although the private ownership of land prevents the full realization of equal opportunity, more weighty considerations demand private control. But these considerations apply only within certain limits. It is not necessary that a person should own $1,000,000 worth of land in order that society may have the benefits of the productive appeal inherent in land ownership.

Thus we have a conflict. From the standpoint of distribution, private ownership of land seems undesirable, from the point of view of production, it is requisite to the most economic use of this natural agent. The solution seems to lie in the direction of limitation of the amount of land a person may own. This would diffuse the rent surplus at its source and tend to increase ownership cultivation. Both results are desirable.

In carrying out this policy, farms of the most efficient size, the most effective relations between capital and land in industrial pursuits, and the amount of land necessary for home purposes, would be controlling criteria. With the growth of population and the consequent need for more intensive cultivation of agricultural lands, and with the changing relations between capital and land industry, there would be a continual redefinition of size. This could only be done, of course, in a rough sort of way. The method of controlling size would probably be a graduated land tax.

In summary: private ownership of land is fair only to the extent that it is necessary to stimulate men to produce. The amount of land that an individual may hold must always be decided in the light of agricultural and industrial efficiency. This is obviously no simple matter, but it is possible to approximate much fairer conditions than now exist.

Property and Inheritance

From the point of view of distribution, inheritance cannot be defended. It is in harmony with the principles of equal opportunity that all men should possess wealth in precisely the proportion in which they produce it. Inheritance distributes wealth among men in accordance with the chances of birth. As an evidence of the fact that this is an uneconomic system of distribution is the non-productive leisure class. Members of this class have inherited wealth, but they are disposed to use it for luxurious consumption rather than for the improvement of the productive organization of society. Thus is human power either wasted or misdirected. Additional evidence may be adduced. Even where inheritances are not so large as to create an idle class, they impose a series of handicaps on producers. For example, the man who inherits $1,000,000 or $10,000 has an economic advantage over him who inherits nothing. This prevents the full play of personal ability in productive pursuits and brings about an economically bad subversion of the principles of equality of opportunity.

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[6] The singletax program, in its emphasis on distribution, fails utterly to note the effect of public ownership of land on production. It is, therefore, a retrograde movement.

However, inheritance may be defended. There is a powerful incentive to productive effort inherent in the institution. The desire to provide well for one's family after one is gone is strong in most men. Since it is unquestionably one of the most important motives to accumulation, inheritance is socially wholesome.

Therefore, we see that as a distributive system, inheritance is indefensible, but as a spur to productive effort, it is invaluable. The solution of this difficulty seems to lie in the direction of limiting the size of inheritances. But how large should inheritances be? This question cannot be answered categorically. It is probable, however, that the appeal to productive effort embodied in inheritance consists chiefly in the desire to place one's family in a relatively good economic position. Therefore, if $50,000 or $100,000 happened to be a large fortune, it is quite likely that the head of the family would strive just as hard to acquire that amount as he now strives to accumulate more. It is all a relative matter. At least, there is no justification for the inheritance of fortunes large enough to create a non-productive idle class. A progressive inheritance tax would accomplish the desired result.

It is sometimes urged that an inheritance tax dissipates capital. The fundamental principle of this argument is that large fortunes promote saving and that widespread distribution leads to consumption. There may be some truth in this, but there is a counter contention that equal opportunity would develop thrift and frugality. If we are right in the assumption that there is just as much appeal to productive effort embodied in $100,000 where $100,000 is a large fortune as there is in $1,000,000 where $1,000,000 is a large fortune, it seems quite improbable that an inheritance tax could have much effect in dissipating capital. And it seems quite certain that the wider play of the appeal, incident to the establishment of equal opportunity, would develop frugality and thrift. If there is an appeal to productive effort in the institution of inheritance, it should lie to all members of the group.

Whatever may be the relative strength of the two forces, it is hardly probable that there would be a decrease in saving which would offset the increase in productive effort due to the attainment of personal productivity distribution. As a matter of conjecture, we do not believe there would be any decline in saving, but this we cannot prove any more than the apologists of large fortunes can prove the opposite. The same reasoning would apply, obviously enough, to a graduated land tax or to any other measure the object of which is to bring about personal productivity distribution.

In summary: the doctrine that an inheritance tax will dissipate capital is erroneous. Inheritance should be limited to the amount necessary to stimulate the appeal to productive effort embodied in the family.

Property and the Wage Contract

Contract is static, cross-sectional. Through it, all the inequalities of the existing economic order manifest themselves. These inequalities may be personal or institutional. As far as they are personal, it is not for society to attempt to control them, except where education is concerned. As far as they are institutional, they ought to be eliminated. This is the object of destroying fraudulent competition, of fixing monopoly prices, of limiting the size of land holdings, and of limiting inheritances.

As a result of the existing institutional inequalities, the wage contract is uneconomic, except in a few cases where, through organization, productive power and contracting power have become identical. Ordinarily, as between labor organizations and organizations of capital, the advantage in contracting lies with the latter, although some labor organizations may be in a strategic position so strong as to throw the balance the other way. It is immaterial whether capital or labor happens to be in the stronger position as far as the social results are concerned. In so far as unequal contracting power exists, society is weakened. In the first place, the present fund of human productive ability is wasted because personal distribution is not in proportion to personal productivity. In the second place, as between generations, human power is not conserved. This ordinarily occurs through failure to maintain, or to improve, the physical, moral and intellectual standards of the people. This is the economic theory underlying limitations on the right of contract and personal liberty in such legislation as minimum wage laws, laws regulating the hours of labor, arbitration enactments, etc. In other words, these laws are an attempt to approximate the results that would exist under conditions of equal opportunity.

Property acquired as a result of unequal contracting power based on institutions is unfairly acquired. Obviously, the uneconomic inequality in the wage contract is a result of the existing unfair methods of getting wealth. Although a derivative problem, it is of sufficient importance to be classed as an independent method of uneconomically acquiring wealth.

PROPERTY AND THE METHODS OF ACQUIRING IT: SUMMARY

Property may be defined as the exclusive control over an economic good. Property, *per se,* then, cannot be in contradiction with the doctrine of equal opportunity. Under conditions of equality of opportunity, the amount of property that an individual could accumulate would be proportional to his productive activities. Moreover, the appeal to productive effort inherent in the right of ownership would induce the maximum expenditure of effort. Consequently, private property, as such, promotes social welfare.

But private property may be in contravention of economic welfare. This is true when it is unfairly acquired. The attack, however, ought not to be made on property, but on the unfair methods of acquisition. As has been stated, the unfair ways of securing property are (1) through fraudulent competition, (2) through monopoly, not purposely established for social reasons, (3) through unreasonable ownership of land, (4) through undue inheritance, and (5) through uneconomic wage contracts.

Economic welfare can be obtained only by destroying these unfair ways of accumulating wealth, for in this manner only can personal distribution be related to personal productivity, and the maximum economy of productive agents be secured.

Equal Opportunity and Large Scale Production

We may call attention here to the effect of equal opportunity to produce on large scale production. Undoubtedly, large scale production carries with it many economies. It is one way of conserving human ability. It is, therefore, economically desirable. Would equal opportunity to produce affect deleteriously large scale production?

At the present time, large businesses are financed by means of borrowed capital got through the sale of securities. The machinery for collecting capital would not be adversely affected if equal opportunity prevailed. Banks, insurance companies, exchanges, etc., would still afford investment machinery. Consequently, it seems unlikely that there could be any deleterious effect on large scale production. The fact is, there would be a closer correspondence between the size of a business and productive efficiency. Overgrown concerns could not exist, nor could inefficient ones be carried by means of trust organization.

Moreover, if government eliminated fraudulent competition for capital funds, by thoroughly regulating securities issues, investment conditions would become more stable in proportion. Since this would induce capital formation, it seems that equal opportunity would promote large scale production.

One may point out the fact that it may be desirable to require securities issues in small denominations in order to afford wider investment opportunity. This would be especially true in the case of the so-called public utilities where investment is more likely to be stable than in the case of highly competitive businesses.

Large scale production does not necessarily mean destructive competition, but in certain large scale industries, where capital is highly specialized, destructive competition is likely to occur. This always implies uncertainty in the employment of labor and capital, and does not secure the maximum economy of productive agents. Some sort of legalized pool, fashioned after the German cartel, with binding contractual features and freedom of businesses to enter the pool and to leave it, may serve to maintain equal opportunity and, at the same time, do away with the danger of cutthroat competition. Such a pool should be under strict governmental regulation.

The Ideal and its Approximation

The ideal economic system, viewed from the present, is that degree of equality of opportunity consistent with the appeal to productive effort inherent in property and inheritance. The problem, then, becomes one of constructive adjustment. The economic iconoclast performs about as well as the proverbial "bull in a china shop." If there is one well-attested fact in history it is that great economic changes take place slowly. Any radical alteration of institutions assumes that human nature can be changed over night and that institutions are mere ephemeral things. Both assumptions are fundamentally false. Consequently, the approximation of the ideal must be gradual and evolutionary, not radical nor revolutionary.

The methods of approximation are two: first, institutions may be defined directly and personal distribution thus related to personal productivity, or second, value may be fixed directly and personal distribution thus related to personal productivity. In either case, the maximum economy of human and natural resources is secured.

That immobility of production agents, degrees of personal efficiency, and variability of industry are complicating phenomena in approximating the ideal is plain. This only means, however, that a public policy cannot be worked out with theoretic nicety. But many problems may be roughly and justly solved. What should be the nature of property, of inheritance, of contract, what ought to be the relative strength of competition, of monopoly, of government authority, in order that personal efficiency and social economic service may manifest themselves and receive economic rewards accordingly? With the growth of society, there must be a continual redefinition of institutions and of the scope of play of economic forces. We have, then, a constantly progressive attempt to reach a constantly receding goal—a goal which is always the same in that its essence is justice between men where justice is interpreted in terms of social strength.

Fair Value and Monopoly

The approximation of fair value involves the elimination of all unfair ways of acquiring property. The particular problem to which this monograph addresses itself is the elimination of the unfair acquisition of wealth through natural monopoly. More specifically, the problem is, what price of monopoly goods will relate monopoly income to personal productivity?

CHAPTER II

THE THEORY OF REGULATED MONOPOLY PRICE

In the preceding chapter the general theory of fair value was developed. In the present chapter we take up the particular problem of fair value under conditions of natural monopoly. We shall limit the discussion to the railway business.

The Objective Criterion of Fair Value

The presence of monopoly signifies the absence of equal opportunity and, therefore, of personal productivity distribution. This does not conserve social welfare. However, society may remedy this condition by directly fixing the value or price of monopoly goods or services. But, by what sign are prices to be determined? It is not possible to judge the productive power of an individual by inspection, nor can the fair value of a good be ascertained by looking at it. There must be some objective criterion of fair value.

It is sometimes said that competitive value is fair value, but this is untrue. If competition were synonomous with equal opportunity to produce, or with that degree of equal opportunity consistent with the appeal to productive effort embodied in property and inheritance, wealth distribution would be in proportion to individual productive ability, and competitive value would be fair value. But competition, under institutions as they are now defined, is not synonymous with equal opportunity, and competitive value is not fair value. It can be made so only by eliminating all the unfair methods of acquiring wealth.

Nevertheless, competitively determined value may be used as the objective criterion of fair value for purposes of fixing monopoly price. One reason for this is that no other test is available. A more significant reason lies in the nature of the problem. If we use competitive value as the guage of fair value under monopoly, we put monopolistic producers and competitive producers on exactly the same footing. This will destroy the unfair element in monopoly.

With the gradual elimination of all the unfair ways of getting wealth, value under conditions both of monopoly and of competition would gradually approximate fair value. This is one problem; the elimination of the unfair element in monopoly is another; it is the latter problem which we are to study.

The Specific Problems

The specific evils of monopoly are extortionate prices, discriminatory prices and inadequate service. The corresponding problems are: What aggregate return should a monopoly be permitted to earn? How should this aggregate return be collected from those persons who use the monopoly service? What is adequate service?

Aggregate Return

If competition prevails, the prices which a business may charge for its goods tend to yield a total return which just covers marginal expenses of production. Marginal expenses of production include wages of management, wages of labor, interest on investment, cost of raw materials, depreciation allowances, taxes, insurance and a recompense for risk. For some purposes, a more useful way of stating the general principle is as follows: ordinarily a competitive business can earn no more than a normal net return on the capital actually invested in the enterprise. This fact is indicative of equality of opportunity.

If monopoly prevails, prices are fixed at the point of highest net returns. Ordinarily, this results in a total return which more than covers expenses of production. In other words, a surplus above normal competitive net return usually appears. This surplus is symptomatic of the exclusive position of the monopolist—the position that social regulation attacks.

The relative rapidity with which capital flows into regulated monopoly fields as compared with competitive businesses depends on the relative net return to investment. It is usually said that, in the case of regulated monopoly, the rate of return should be high enough to attract capital. This is merely a truism. It offers no criterion of prices. The fundamental consideration is: How much capital ought to be attracted? If all businesses were competitive, capital would flow into those productive enterprises where it was most needed, for the rate of return would be highest in those fields. But all businesses are not competitive, nor can they be made so. However, the result is the same under a system of price fixing which permits a monopoly to earn no more than the normal competitive net return to its actual investment.

Consequently, the fundamental principle in fixing monopoly price is that total return should just cover total expenses of production, or that a monopoly should be allowed to earn a net return to its actual investment equivalent to what the same investment would yield under competition. In this manner, distribution under monopoly conditions would be placed in precisely the same position as under competition. Thus, as between producers in competitive fields and producers in monopoly fields, equality of opportunity would be established.

INVESTMENT *versus* SPECULATIVE CONDITIONS

In competitive businesses, there are speculative as well as normal returns. It is clear that the element of risk, due to imperfections in the competitive system, results in a general level of expenses of production higher than would exist under more perfect competition. This means less than the maximum economy of productive agents. The elimination of risk is, therefore, highly desirable.

As far as possible, then, in the case of regulated monopoly, investment rather than speculative conditions should prevail. It is believed that the advisability of taking this position will hardly be questioned.[1] If it is economically desirable to attempt to approximate the results of competitive conditions for monopolies of recognized public importance, the unavoidable conclusion is that the results of the best possible competitive conditions should be basal. In this way only can the level of expenses be reduced to the minimum.

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[1] See Smalley, *Railroad Rate Control* in *Publications of the American Economic Association*, 3rd series, Vol. 7, p. 422. Mr. Smalley does not agree.

The Level of Expenses and the Level of Prices

If actual investment is made the basic consideration in expense levels, the effect of price changes must be considered. The fact that twenty or thirty years ago $100,000 was invested in a business does not mean that $100,000 measures investment at the present time. For example, suppose a competitive producer to have invested $100,000 in an enterprise ten years ago, and suppose him to have kept his investment intact. If prices have risen twenty-five per cent during the period, the value of the business is now $125,000. The decreasing purchasing power of money has established a new expense level which is twenty-five per cent higher than the old one. Of course, it is recognized that no such smoothness as appears in the illustration occurs in actuality, but the principle is clear. The producer is neither worse off nor better off relative to other producers than before. But if actual investment is taken as the standard of fixing monopoly price and no allowance is made for rising prices, the regulated concern would be placed in an economic position relatively bad. Should prices fall, the regulated enterprise would be in a position more favorable than ordinary investors in competitive industries. Consequently, original outlays ought to be affected by an index of price changes constructed of pertinent items, for in this way only can any sort of equality of opportunity be maintained between various producers.

Methods of Collecting Total Return

Having determined that a monopoly should be permitted to earn an aggregate return equal to total expenses of production, we now take up the question: How collect this total income from those persons who patronize the monopoly? There are two principal theories of collecting total earnings, namely, the cost of service theory and the value of service theory.

Before we discuss these theories, it will be helpful to explain what is meant by the law of comparative costs, or territorial equality of opportunity. This law is that each nation or community should produce those goods which it can produce relatively cheaper than another nation or community. Let A and B be two communities. If A can produce wheat at less expense than B, and if B can produce sugar cheaper than A, it is obviously advantageous for each community to specialize in that commodity which it can produce most efficiently. But suppose A can produce both wheat and sugar at less expense than B. It is still advantageous for A and B to specialize in the production of that commodity which they can produce relatively cheaper. Assume expenses of production as follows:

	A	B
Wheat per bushel	50 cents	75 cents
Sugar per pound	10 cents	20 cents

If A invests $8 in production, it may secure 16 bushels of wheat or 80 pounds of sugar. The 80 pounds of sugar will exchange in B for 20 bushels of wheat. A can, therefore, get more wheat by producing sugar and trading with B than it can by raising wheat. On the other hand, if B invests $8 in production it may secure 10 bushels of wheat or 40 pounds of sugar. The 10 bushels of wheat will exchange in A for 50 pounds of sugar. B, therefore, gains 10 pounds of sugar by specializing in wheat and trading with A. Thus both A and B gain by turning their productive effort into those enterprises in which they have a relative advantage.

In the above illustration, transportation charges were ignored. But transportation charges are expenses of production and must be considered. If they equal in amount the gain from trading, it ceases to be advantageous to engage in exchange. This makes each community produce all the things it wants, and seriously limits the total amount of goods that the community may have. On the other hand, if transportation costs are relatively insignificant in amount, trading is gainful. Low costs of transport are, therefore, of tremendous economic importance.

Discriminatory rates are equally significant. If rates are made low on sugar but high on wheat, the benefits of trade are destroyed, for a community must pay for the sugar it wants with the wheat it raises. If there is no gain in shipping wheat it will not be shipped, and there is nothing to give in exchange for sugar. Hence, each community must produce both wheat and sugar, which is economically wasteful.

If equal opportunity to produce prevails, the principle of comparative costs becomes effective, and prices tend to equal marginal expenses of production. This conserves human power and natural resources. We may reverse the process. If prices of monopoly goods are fixed so as to equal expenses of production, the results of equal opportunity are obtained, and social welfare is promoted. It is true that we must use existing competitive expenses as the criteria of price fixing, and that competitive expenses have elements of unfairness in them, but this is the best that can be done.

The cost of service theory dictates rates based on the actual cost of transporting goods.[2] This system of rate making applies the doctrine of equal opportunity to railway tariffs. In other words, it promotes geographical division of labor. Consequently, to every locality is preserved the natural advantages of its location; to every entrepreneur, the fruits of his business ability; and to labor, the most productive opportunity for its effort. Put otherwise, the effect is to achieve conditions of equal opportunity in fields of economic effort other than the railway business, which means the maximum economy of production agents.

On the other hand, if rates are made in accordance with the value of service theory, some goods are charged more than the cost of shipment, and some less. This amounts to subsidizing some industries and to taxing others. It is, of course, specious to argue that some goods could not move at higher rates and that, therefore, subsidization is necessary. This begs the question. Where expenses of production are high, rates are made low; where expenses of production are low, rates are made high. Thus are the natural advantages of location destroyed and thus are business ability and physical effort forced into less productive pursuits. In short, the value of service principle is directly in contravention of the law of comparative cost. Since it restricts geographical division of labor, it means unequal opportunity to produce, and does not conserve social welfare.

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[2] Theoretically, of course, each commodity ought to be charged just what it costs to move it. In practice, however, it is convenient to group commodities of similar characteristics for purposes of fixing rates. This is the problem of classification.

But the matter may not be thus summarily dismissed. So far, we have considered the effect of the two theories on businesses which use the railway services. This point we now take up without regard to their effect on the utilization of the railway plant.

The Utilization of the Railway

Before we can satisfactorily discuss the effect of rate theories on the utilization of the railway plant, it is necessary to point out the nature of railway expenses. Some expenses, such as wages of trainmen, outlays for fuel, switching charges, etc., vary approximately with the amount of traffic. Others, such as general administrative expenses, interest on the investment in road-way and track, etc., are practically independent of the volume of traffic. The former are usually called variable expenses; the latter constant expenses.

From these facts, it follows that the railway business is subject to the law of decreasing costs. Taken as a whole, railway expenses do not increase in proportion to tonnage. We may illustrate:

Volume of traffic (tons)	Fixed expenses (total)	Variable expenses (unit)	Variable expenses (total)	Total expenses	Unit expense (total)
1,000	$1,000,000	$1	$1,000	$1,001,000	$1,001
2,000	1,000,000	1	2,000	1,002,000	1,002
100,000	1,000,000	1	100,000	1,100,000	11
500,000	1,000,000	1	500,000	1,500,000	3
1,000,000	1,000,000	1	1,000,000	2,000,000	2

Thus, when traffic increases from 1,000 tons to 1,000,000 tons, the unit cost of transportation decreases from $1,001 to $2. This relation of unit costs to traffic indicates the importance of fully utilizing the plant.

It should be noted, however, that this law is applicable only up to the point where the plant is fully utilized. After that point is reached, it becomes necessary to increase the investment and to enlarge the administrative organization. In other words, constant costs become variable. From a short time point of view, then, railway expenses are variable and constant; from a long time point of view, all expenses are variable. These facts are of vital importance in deciding which of the two rate theories is economic.

If all railway expenses were variable, it is unquestionably true that rates based on the cost of performing the service would secure the maximum utilization of the plant. Suppose an average ton-mile cost of one cent. At that rate, a certain amount of traffic would move; to charge more would merely curtail the volume of business and, therefore, would not secure maximum utilization; to charge less would increase the amount of traffic, but the railway could not meet expenses. It might, however, charge some goods more and some less which would diminish or augment traffic in the respective goods, and would not increase the aggregate business.

But if some railway expenses are constant, maximum utilization may be secured by carrying some commodities at less than average unit costs. Suppose the constant expenses are $1,000,000 and that the total amount of traffic is 1,000,000 tons. In the average, each ton must contribute $1 toward constant expenses. If 2,000,000 tons are moved, the constant costs per ton are $.50. We may assume also that the unit variable cost is $1. When 1,000,000 tons are moved, the total unit expense is $2. When 2,000,000 tons constitute the traffic, the total unit cost is $1.50. Suppose, however, that it is not profitable for producers to ship the second million tons at a $1.50 rate. Rather than let the business go, the railway can afford to take it at $1.25. This rate covers all variable expenses and leaves $.25 per ton, or a total of $250,000, which may be applied to constant charges. Since the total constant expense is $1,000,000, this leaves $750,000 to be borne by the first million tons, or $.75 per ton. That is to say, the total unit cost is reduced from $2 to $1.75. At this rate, more commodities would be offered for shipment. It is plain, then, that when some costs are constant, maximum utilization may be secured by carrying some goods below average unit costs.

This fact has been used to justify rather sweeping divergencies from rates based on the cost of performing the service. It is usually argued that rates which pay something over variable costs permit a desirable re-allocation of constant expenses, and that where the traffic will bear no more, it is economically sound to quote such rates. This account of the matter overlooks some important facts.

In the first place, it fails to recognize the fact that low rates at competitive points may merely divert traffic from one road to another in which case there is not a fuller utilization of the transportation system as a whole, and consequently there is no national gain. In the second place, it ignores the effect of rates on the location of, and the amount of capital invested in, particular industries. For instance, on the direct road, lower rates on competitive than on intermediate traffic will cause industries to locate in the competitive points that otherwise would be established in the intermediate points—in direct contravention of the law of comparative costs. Or, if rates are made so that a producing area far removed from a certain market may compete with a producing area not so far away, but having the same costs of production, capital is used with less than the maximum of productivity. Also, if rates on competing, or substitute, goods are not in proportion to the cost of transport, although the rates on such commodities may be less than on other commodities involving approximately the same expense to the railways, there is subsidization with the consequence that capital is diverted from more into less profitable enterprises. Or, if rates on raw materials and finished products, in a given case are not proportionate to cost of service industries will not be located at the points where natural advantages are greatest, with the result that production and exchange are diminished in amount. While, therefore, the law of decreasing costs does justify rates which pay only something more than variable expenses, it may not be inferred, as is often done, that the principle may be applied indiscriminatingly or indiscriminately.

Cost of Service *versus* Value of Service

Two general principles are clear: first, no service should be rendered by a railway for less than the variable cost occasioned by the particular service, for lower rates would amount to subsidization of the favored industry and prevent an economic development of business; second, the constant costs should be apportioned to the various services in proportion to the ability of each to pay them, for this will achieve the maximum utilization of the railway plant.

Railway rates, then, should be based partly on the cost of service and partly on the value of service—essentially, an application of the principle of competitive price under conditions of joint cost. For convenience, we may designate this the joint cost theory.

In using this theory, however, the effect of rates on the utilization of the railway system as a whole and the effect of rates on the location and character of industry should always be controlling considerations. An unqualified value of service theory is uneconomic; an unqualified cost of service theory is about as uneconomic. Used with discrimination, the two together give an adequate and economic theory.

Established Economic Conditions

At the present time, rates are made in accordance with the value of service principle. Such rates are discriminatory, but on the basis of them, business has become established and communities have been developed. While it would be economically advantageous to have rates in harmony with the joint cost theory, it would be foolish to disarrange the present productive organization by suddenly changing rate schedules. However, the joint cost principle may be put into effect gradually. This would not materially affect present conditions, but it would direct future development along the lines indicated by the law of comparative costs.

APPORTIONMENTS

Due to the fact of joint expense many accounting difficulties are met in applying the joint cost theory. For example, if wheat and sugar are carried on the same train, how much of the expense is due to wheat? How much to sugar? How apportion joint expenses, such as wages of trainmen, expenditures for fuel, general expenses, interest on investment, etc., to specific units of traffic? These are complex problems, but not without solution.

Although joint costs are not directly assignable, they are logically and rationally so. The expense of moving a bulky commodity is greater than the cost of moving a less bulky one. It is more expensive, on account of the danger of loss, to carry articles of high than low value. Fragile goods cannot be moved as cheaply as unbreakable ones. And so on through the list we might go. It suffices to point out that it is not impossible to discover some way to allocate joint costs.

It is not maintained that this can be done with exactness. But no scientific development of rates is possible without some approximation of costs, and almost any degree of approximation would be better than the haphazard method now in use.

OTHER RATE THEORIES

The value of commodity, or taxation, theory has been proposed. Under this theory, commodities of high value pay high rates and commodities of low value pay low rates; this is a sort of illusory analogy to the ability to pay theory of taxation. But the value of a good is no criterion of its ability to pay transportation charges. The criterion of ability to pay railway rates is the difference in utility at the point where the good is made and at the point where it is consumed. Like the value of service theory, the value of commodity principle contravenes the working of the law of comparative costs. It restricts a full

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[5] Mr. C. E. Schreiber, head of the Statistical Department of the Wisconsin Railroad Commission, believes that the error is not more than two per cent to three per cent in apportioning expense to passenger and freight. It is undoubtedly true that this Commission has done more than any other in the matter of cost analyses. I have these estimates from him directly.

development of geographical division of labor and, therefore, cannot be defended.

The fallacy of the value of commodity theory may be stated another way. Just as the joint cost theory implies personal productivity distribution, so the value of commodity theory implies distribution in proportion to need. In effect, this theory imposes high rates on luxuries and low rates on necessaries. At any particular time, since the marginal utility of a dollar varies with the number of dollars that an individual has, this method of rate making would increase total consumers' satisfaction. That is, it would increase the real income of individuals with few dollars. This is its purpose, and this is essentially a need-distribution theory. As a general rule, distribution on the basis of needs cannot be supported, for it does not secure the maximum economy of production agents.

In view of the existing inequality in wealth distribution due to the various unfair ways of acquiring wealth, it may be that there is a defense for charging luxuries very high rates and necessaries very low. But the defense lies in the domain of production rather than in the field of consumption. In so far as the result is to curtail the use of luxuries and to increase the real income of the less wealthy classes, it may promote industrial efficiency. It is clear that this is not a permanent defense, nor can there be such a thing. It is necessary to go to the root of the matter and to establish distribution on the basis of personal efficiency.

Other standards have been advocated, such as the utility theory, the postal theory, the keep-everybody-in-business theory, and various other modifications of the value of service and value of commodity theories. For the same reasons that the two main theories fail, the corollary theories fail.

SOME CASES IN WHICH THE COST OF SERVICE PRINCIPLE IS NOT ECONOMIC

There are some cases in which the cost of service principle does not promote public welfare. One may cite the instance of the post office. The general dissemination of knowledge and the convenience of a flat rate are so important in political and economic welfare that the state may undertake the postal service without reference to the cost. This—a case in which self-interest promotes neither its own ultimate well-being nor the welfare of society—is so well established in economic theory that it suffices to call attention to it.

Although by no means a general rule, it may sometimes be well to undertake to supply pure water in goodly amounts at less than cost. The hygienic benefits of a plentiful use of good water are not necessarily measured in terms of what consumers are willing to pay. Generally, the cost of service principle should prevail in all so-called public utilities. The cases in which it does not, call for clear justification.

Passenger fares, either flat or zone, are sometimes sustained on the ground that they tend to relieve the congestion of population in the larger cities. Undoubtedly, there is economic gain from wholesome living conditions. Undoubtedly, the congestion of population in cities is economically bad. Undoubtedly, as a temporary relief, passenger fares of the zone or flat variety are economically sound, for they improve the moral, intellectual and physical efficiency of men.

But the fundamental causes of congestion are three: the maladjustment in the distribution of wealth; the survival of a rather crude doctrine of personal liberty which permits the use of harmful goods, chiefly intoxicating liquors; and low standards of living among certain classes, caused primarily by immigration. For the most part, these ultimate causes may be eradicated through institutional control and education. This done, it is probable that there would be no justification for passenger fares on any basis other than that indicated by the joint cost theory.

SERVICE STANDARDS

So far we have assumed service standards. We come now to the question, What is adequate service? This is a difficult question to answer. Theoretically, the standard of service is that service which would be established if the railways were competitive. In practice, however, it is necessary to fix some standard more or less arbitrarily. Some customary service is inadequate. On the other hand, it is possible to have extravagant service. For example, a passenger service which would require ten cents per mile to cover expenses would be wasteful. Between the extremes of extravagance and inadequacy, a reasonable standard may be found. To do this, it is necessary to take into account the economic well-being of the people and the needs of production. Comfort, safety, and reasonable speed are controlling criteria in passenger service: rapidity of movement, security, and inexpensiveness are the important considerations in freight service. These factors cannot be put into algebraic form, but it is possible to determine approximately what standard is best suited to conditions.

CHAPTER III

VALUATION: THE DETERMINATION OF EXPENSE LEVELS

In the last chapter, the general theory of regulated monopoly price was developed. Prices should be fixed so as to permit the monopoly to earn a normal competitive net return to the capital actually invested in the business, or prices should be fixed so as to allow the monopoly to earn a total return equal to aggregate expenses of production. This may be called the investment theory of valuation. We have now to consider the elements which comprise aggregate expenses.

Elements in Expenses

The determination of total expenses requires (1) the valuation of items, physical and non-physical, properly entitled to a return, (2) the valuation of operating expenses, or the standardization of operating costs, and (3) the valuation of the rate of return. In other words, what items, tangible and intangible, are properly entitled to a return, what value should be placed on them, what are legitimate operating expenses, and what is the proper rate of return?

Past and Present Conditions

The problem is complicated by the fact that a theory of fair value applicable to present conditions may have to be materially modified in its application to past conditions. It cannot be assumed with certainty that past and present conditions may be treated alike. For instance, the investment theory excludes all donated items from value. Such items represent no expenditure on the part of the monopoly, and no claim to a return on them may be urged. As applied to the present, no objection to this contention can be maintained successfully. But to assume that a retroactive application is just is, at least, a rather violent assumption. Certain equities may have been established which justice must recognize. Consequently, we must always keep two problems in mind: What value will establish conditions of equal opportunity to produce in the present? And what disposition must be made of equities established in the past? Although it may well be that the equities are the result of past inequalities, we cannot remedy one injustice by creating another.

In general, we think it can be shown that any retroactive regulation is unjust. If this is true, the investment theory applies only from the beginning of regulation in any particular case. But the reasons for this conclusion are so varied, and the problem is so important, that we take it up in connection with the various items in valuation.

SUBSTITUTE *versus* PRESENT PLANT

Tangible items include capital goods and land. The investment theory includes only those tangible items that are properly chargeable to capital account under scientific accounting methods. Book value, inflated by unwise or fraudulent outlay, is not a criterion of investment. Only those expenditures which would normally afford a return under the full application of the law of comparative costs can be legitimately charged to the capital or counted in value.

This position may seem to lead to cost of substitute plant rather than present plant as the criterion of investment, but such is not the case. It is evident that to use cost of substitute plant as the controlling element would increase heavily the risks of business and thus raise the general level of expenses. And while the use of present plant as the basis of investment results in temporarily higher expense levels, the fact that certain risks are eliminated results permanently in lower levels of expense. Thus by adopting present plant as the basis of value calculations a sort of insurance is created. The temporarily higher expense levels, due to retaining the old plant, are analogous to insurance premiums, and the policy has the same economic justification that all insurance has. Investment, therefore, is measured by present plant.

UNIT PRICES

A general problem of much significance is that of unit prices. What prices are to be used in fixing the value of items which are properly entitled to a return? Under the investment theory, actual prices at the time of construction may be used. If so, it is clear that the value thus obtained must be affected by a weighted index of price changes constructed of pertinent items. The same result may be obtained if present prices are applied to actual construction conditions. This method automatically has the effect of applying a weighted price index constructed of appropriate items and is, therefore, a superior method.

In applying present prices, sometimes an average is fairer than current prices and sometimes current prices are fairer than an average. The advantages of an average are obvious. Averages avoid extreme fluctuations in market prices and, therefore, tend to approximate closely the actual conditions under which normal construction takes place.[1] Avoiding price fluctuations is conducive to more stable rates—a most desirable condition[2]—while the using of current prices, which may be abnormally high or abnormally low, may work injustice to the consumer or to the investor.

One or two year averages reveal only surface fluctuations and usually mean frequent rate adjustments. Five or ten year averages disclose more significant price variations coincident with economic changes and are ordinarily favored.[3] An average based on an assumed construction period seems to bear no particular relation to any significant fact and is, therefore, not of much importance.[4] In fact, all averages may be unfair to the regulated company. This case arises when prices are not merely fluctuating but show marked tendencies to rise continuously, as in the case of materials constructed from forest products. In this case, future conditions may be best cared for by using current prices. Such current prices would, of course, not be current market prices, but normal prices discovered by the use of projected curves.[5]

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[1] Whitten, R. H., *Valuation of Public Service Corporations*, p. 202.

[2] *Hill v. Antigo Water Co.*, 3 W. R. C. R. 623, 639.

[3] Whitten, *op. cit.*, p. 204.

[4] Whitten, *op. cit.*, p. 206. Mr. Whitten here quotes from an article by Gray, H. L., in *Engineering and Contracting*, May 3, 1911, pp. 520–1.

After all, the end sought is normal price. And while no hard and fast rule can be laid down, no great amount of investigation is required, in a particular case, to discover the usual or ordinary price of various sorts of materials used in a plant.

Physical Items—The Inventory

The first step in discovering investment is an inventory of the physical items used and useful for the public. We must find out what things are to be valued before we can value them. Moreover, the inventory may reveal items which do not represent any outlay on the part of the investor. On the other hand, expenditures made by the investor may not be revealed in the inventory. It is these problems we now take up.

Investment in Excess of Present Needs

In anticipation of growing business, land and plant may be acquired in excess of immediate needs. In the case of land three possible ways of dealing with this situation present themselves. In the first case the excess land may be counted in value. The consumer takes the risk, and any appreciation in land should accrue to him and depreciation be borne by him. In the second case, the land may be excluded from value. Then the investor assumes the risk, and when the land is actually used it should be included at its full value at the time. In the third case, the land is entered in value at the time it is acquired, a full return is allowed on it, and appreciation is counted as income.[6]

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[5] Riggs, H. E., in *Proceedings* of the American Society of Civil Engineers, Nov. 1910, p. 1506.

[6] This is the position of the New York Public Service Commission. See case of *Queens Borough Gas and Electric Light Company*, 2 P. S. C. 1st D.

This last position is obviously a compromise position. Theoretically, the first two are more tenable. Either the risk should be borne by the consumer or it should not. The cost side of the problem decides here. It would undoubtedly be very costly to regulate the purchase of land for future needs. Moreover, the delay incident to commission decision in any particular case might prevent the taking advantage of favorable conditions of purchase. We, therefore, think that land ought to be excluded from value until it is actually used and then counted at its full value at that time—as would certainly happen under normal competitive conditions.

In order to avoid heavy inadequacy charges, it is ordinarily necessary to build plant in excess of immediate needs. This excess plant becomes a legitimate part of capital account, and must be allowed in value. This, of course, assumes that reasonable judgment has been used in building for the future. If a plant far in excess of any probable use for this or the next generation has been put up it falls under the head of unwise expenditure and is not allowed. The whole problem hinges on the question of reasonableness, to be interpreted in each particular case. Should it finally prove that the excess plant is not going to be useful in the service of the public, although a return may have been allowed for a time, it must eventually be excluded on the ground of unwise expenditure. This is merely a risk private enterprise must bear, and regulated business cannot escape the results of bad business judgment.[7]

INVESTED SURPLUSES

A surplus is an excess over a fair return. Theoretically, of course, invested surpluses have no place in value. Profits in excess of a fair return should be distributed to the consumer in lower rates, or, what amounts to the same thing, reinvested and considered as a sort of public trust upon which, of course, no return is to be expected, except a small one to cover entrepreneurial costs of handling. Thus we do not invade investment; nor do we put any business in a position less favorable than it would be under normal competition. But, decidedly, we do deprive monopolies of their peculiarly exclusive position. As applied to the future this position will, undoubtedly, be accepted.

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[7] *Spring Valley Water Co. v. San Francisco,* 165 Fed. 667, 697. Whitten, *Valuation of Public Service Corporations,* pp. 198–200.

As applied to the past, other considerations enter to modify the above position. Invested surpluses have become the basis of relations between the public and the investor. They have been capitalized; benefits have been conferred; equities have been established.[8] The excess put into improvements has reflected itself in the market value of stocks and bonds, and investments have been made accordingly. Retroactive invasion of these investments cannot be justified on the ground that consumers have paid more in the past than they would have been required to pay under proper schemes of regulation. Granted that they have, it is difficult to see how remedying past inequalities can be accomplished by creating new ones, and this is just what would happen if the investor is pillaged for the benefit of the consuming public. The end in view may be wrought by means of proper treatment of inheritance and property. Thus the innocent investor escapes, but the manipulator who has come out with a large fortune is finally reached. We conclude that past invested surpluses are to be allowed in valuations.

The question now arises as to the validity of permitting surpluses which are invested as public trusts. The main objections urged against the accumulation of such a surplus are (1) that it is provided out of excessive charges to the public for service, (2) that it tends to extravagance in operation, on the theory that close margins tend to greater economies, and (3) that it affords a way of giving exorbitant and unreasonable dividends to the shareholders by some form of distribution of the surplus from time to time.[9]

In so far as the first point is concerned, there are obvious advantages in the surplus: (1) it strengthens the credit of the company by enabling it to make interest and dividend payments regular and dependable, (2) this enables the company to get capital for extensions, etc., on most favorable terms, (3) it enables the company to weather commercial and financial disturbances, (4) it enables the company to give the best quality of service in that it does not have to adjust more or less inflexible operating expenses to highly flexible income due to fluctuations in business; it is a reservoir supplied by a fluctuating stream of income, and enables the company to maintain uniform service and permanent operating force which lends itself to greater efficiency, and (5) it lends itself to stable rates, which is highly desirable.

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[8] *Spokane v. Northern Pacific Railway Co.*, 15 I. C. C. R. 376, 415.

[9] *Report* of the directors of the American Telephone and Telegraph Company, March 20, 1912, pp. 8–12.

There may be some truth in the second point. But under constant regulation there is no particular reason why interest charges and operating expenses should not be controlled in such manner as to prevent extravagance in operation. It should be no more difficult to control these expenses under the policy of allowing a surplus than it is to discover whether a surplus is being covered up in padded operating accounts where no surplus is permitted. Moreover, one may just as well assume that a possible surplus will be covered up as to assume that a surplus will lead to extravagance, for the result on rates would be the same. Furthermore, each position assumes the same degree of integrity in the management of a corporation. It is reasonable to assume that the usual $50,000 man will run a business about as efficiently as he can, regardless of surplus. It may be true, then, that when returns are running lowest efficiency is most sought, but it seems equally true that the policy of allowing a surplus will not lead to any great degree of extravagance.

The third point is answered in the original question. The fund is to be regarded as a public trust or public investment, and no return on it may be expected by the public business.

This policy amounts in reality to forcing the public to purchase an interest in the regulated business. If the rate of return allowed the monopoly is adjusted, with relation to competitive businesses, according to risk, the effect on total expenses over long periods of time is nil. In general, since force implies the absence of free exchange, it is doubtless, unsound to compel present consumers to provide funds which might be supplied as capital by the monopoly. Nevertheless, the beneficial results of the surplus seem to justify this particular policy.

Donated Items

As regards future policy, since donated items represent no outlay on the part of the regulated business, they should be excluded from value. But as regards the past, such items, in so far as they have become the basis of established equities, must be allowed.

Adaptation and Seasoning

An old and seasoned roadbed is undoubtedly worth more than a new one. The criterion of this is the fact that maintenance expenses are less. Theoretically, of course, the earlier heavy expenses of maintaining and repairing roadbed may be looked upon as operating expenses, in which case actual cost would be the criterion of investment. Or, additional value due to seasoning may be considered as a proper capital charge, in which case no allowance for such expenditures would be made in operating expenses. The effect on rates would not be different in the two cases, but it is usually preferable, in order to spread costs over a long period of time, to avoid classing as operating expenses charges which may readily fall under capital account.[10]

As regards the past, since neither past earnings can be taken nor past equities disturbed, and since the lowered operating expenses have necessarily expressed themslves in the value of securities, nothing can be done. A valuation now must consider the roadway at its appreciated value. This would be determined by the amount of money put into the roadway whether the money came from earnings or capital. The position is exactly similar to that taken in the case of invested surpluses.[11]

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[10] Whitten, *Valuation of Public Service Corporations*, chap. 16, gives the position of courts and commissions in this matter.

[11] Roadbed seasoning is peculiarly a transportation problem.

Plant adaptation also is a proper item in value. It is impossible to avoid imperfections in the building of a large plant. Expenditures for the purpose of adapting plant to function are necessary, and the amount of such expenditures becomes a proper expense and clearly ought to be allowed in value.

Working Capital

The mechanism of modern business often requires a temporary excess of expenditures over receipts. The funds necessary to finance such a condition are called working capital, and obviously such capital is a proper cost of service. Some difficulties in finding the actual amount of working capital may be experienced, but there is no theoretical difficulty at this point. No questions of past and present arise, for this is always a present item. Consequently, no matter what theory of fair value one may adopt, whether actual cost, investment, reproduction cost or what not, the result would be the same in this case: the actual amount of capital necessary to finance the excess of expenditures over receipts.

Expenditures for Other than Railway Property

This class of items includes all expenditures made by a railway, or any other public utility, for items which are not a part of the utility business. Among them are expenditures for the elimination of grade crossings, paving, etc. If such expenditures are made by the utility they must be allowed in value—either in capital or in operating expenses. In either case, the result is to throw the burden of these civic improvements on those who use the utility, whereas many other people are benefited by the improvements and should bear a part of the costs. The practice has, consequently, no theoretical justification.

In the days of unregulated monopoly, justification for such a policy lay in the fact that a blanket tax on monopoly returns could not be shifted. Consequently, this was a means of getting a part of monopoly surplus, but under present conditions of regulation the practice is indefensible.

Since no equities can have been established on expenditures of this sort there is no reason why they should be included in value, unless it can be shown that no fair return was earned by the utility prior to regulation. Such a condition indicates, not a tax on monopoly surplus, but a taking of reasonable profit. In general, the presumption is strongly against allowing such items. But in the present, if the practice is followed, such items must evidently be allowed in capital or in operating expenses; preferably in capital, for this spreads the burden of the payment over a greater body of consumers. However, if allowed in capital, the item would have to be amortized during the life of the items, or else the present generation would unduly pass charges on to future generations.[12]

Certain Hypothetical Items

Chief among these items are condemnation multiples and increased cost of reduplication due to expenditures on the part of states or municipalities.

Undoubtedly, the cost of right of way is a legitimate element in value. But this is no reason for adding some two or three hundred per cent of the estimated value of the land to cover hypothetical condemnation multiples. If these expenses were actually undergone, they should be allowed.[13] It is quite true that a public utility is ordinarily compelled to pay more for land than its market value, which fact is of great significance in valuation. On the other hand, much land is donated. One cannot therefore argue with the reproductionists that, since at the present time it would probably require the multiples to get the land, it may be assumed that the multiples were used, or that, since a producer now entering the field would probably have to pay the multiples, they should be allowed to the existing company. Nor can one successfully argue that unless these items are allowed a competitor cannot enter the field. It is granted immediately that a competitor cannot enter the field. It is not desirable that one should.

There is only one possible way to deal with condemnation expenses, to wit: find out just what such expenses were and allow them.

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[12] Whitten, *Valuation of Public Service Corporations*, p. 167.
[13] Whitten, *op. cit.*, p. 127.

Another important class of hypothetical items includes increased costs due to difficulties of reproduction. A city may have paved certain streets with the result that it would cost more now to reproduce certain parts of the utility plant than it actually did cost in the first place. When it becomes necessary to replace the part of the plant in question then these items may be taken into account.[14]

But to add an amount to cover potential costs of this sort is to allow a return to the regulated company above anything a competitive investor hopes for or gets. It is to establish unequal production opportunity. Moreover, the taxpayers put down the pavement and then the consumers pay the utility company for being so fortunate as to have such taxpayers in the community.

We have spent, probably, too much time on this item already. The contention need only be stated to show its utter ridiculousness. Such hypothetical items merely indicate the length to which the reproductionists will go.

Appreciation in Land Values

Aside from the appreciation in land value due to changing price levels of which we have disposed, there appears a large increment in value due to growth of population. Is this entitled to a return?

This appreciation may be treated in three ways: first, it may be capitalized and allowed in price; second, it may be counted as income or a reduced return allowed; and third, it may be excluded altogether, and a return allowed only on the actual investment in land.

A very brief consideration of the principles governing the valuation of land will furnish the answer to this problem. Land value is the sum total of the present worths of a series of discounted future estimated incomes. There are thus two elements in it: present income and estimated future income. When one sells land one capitalizes the estimated future incomes, and when one buys land one pays for these capitalized incomes. Normally, the total return of land investments, composed of present income and estimated appreciation or depreciation, is about equal to the return to any other form of investment of a similar degree of risk. The full return is realized only by selling the land or by holding it until rents rise sufficiently high. In no normal case is the final amount obtained from land investment greater than the amount from any ordinary competitive investment.

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[14] The classical illustration of this point is "pavement over mains".

It is clear that the first contention, capitalization of appreciation, permits a double return to public businesses, a return which could not be had under competition. The fact that it can be had in the case of regulated companies is indicative of monopoly position. To permit the appreciation is to capitalize monopoly situation. Since this is the very thing that equality of opportunity requires be abolished, there can be no justification for such policy.

A peculiar argument for allowing appreciation rests on the fallacy of competitive roads. The argument runs as follows:

> "A failure to allow for such increment would be an injustice to a new competing line and would discourage competitive building. This is illustrated where a new company, in a given locality, say in a large city, would have to pay for necessary terminals several million dollars more than an older line with a similar amount of property, it being generally true today that the cost of securing right of way and terminals has greatly increased over former years. Other things being equal, in the process of rate regulation and competition, the rates charged by each being necessarily the same, if the older road were not allowed the increased value of its terminals to correspond with the new company, then its rates, based on the lower value, would, by competition, govern the new road, which would be deprived of reasonable returns on the value of its property. Such a policy of rate regulation would discourage competitive building, under such conditions, although the existing line might not be able to properly care for the business offering."[15]

This is one of the most perfect illustrations of illogical statement one may hope to find. It assumes the desirability of competition in the characteristically monopolistic railway business.

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[15] *Proceedings* of the National Association of Railway Commissioners, 1910, p. 141.

One is surprised to find the date of the statement as late as 1910. It establishes a permanent differential return which could not exist under competition where always the more efficient producer tends to drive the less efficient from the field. The truth is, if eliminating appreciation in land value would discourage competitive building most students of transportation would at once urge its elimination.

The second contention, that is, counting appreciation as income or allowing a reduced return, seems more sound. If the normal rate of return to investments is 8 per cent and if land appreciates at the rate of 5 per cent annually, investors can be found who will pay a price for the land which will give them a cash return of a little more than 3 per cent in the present. The return is a little more than 3 per cent because interest is charged on the unrealized income tied up in appreciation. In the case of utilities, it is argued that equal treatment is afforded if the same cash return is allowed as investors are willing to take. Appreciation is thus counted as income.[16]

There are serious objections to this method. In the first place, it involves the additional interest charges due to unrealized income. In the second place, it does not accomplish its purpose as can readily be shown by certain assumed figures. We may leave out of account interest due to unrealized income in the illustration. Assume the following conditions:

Land—	1890	1910	1930
Value	$100,000	$200,000	$300,000
Income	10,000	20,000	30,000
Building, etc.—			
Value	$100,000	$100,000	$100,000
Income	10,000	10,000	10,000
Present value	$200,000	$300,000	$400,000
Total income	20,000	30,000	40,000

Suppose that $200,000 in 1890 represents the actual investment, and assume, for mere ease in calculation, that ten per cent is a fair rate of return. In the illustration, land appreciates in value at the rate of five per cent per annum. Suppose a valuation made in 1910. Since $300,000 represents value at that time, $30,000 will be allowed as income. Of this amount appreciation will be $5,000, or a cash return of $25,000. This is 12½ per cent on the actual investment of $200,000. If the valuation be made in 1930, a cash return of $35,000, or 17½ per cent, would be allowed. Thus, counting appreciation as income does not seem to approximate the investment theory. Always, if the rate of appreciation in land value is less than the fair rate of return, and it must always be so, the method fails in favor of the regulated company. If one could conceive normal land appreciation at a greater rate than fair rate of return—under such conditions of course one would pay for the opportunity of investing in land and expect less than nothing as immediate return in cash—the method would be unfair to the public utility. It is only when the two rates happen to coincide that the method approximates the conditions of the investment theory. The two rates would correspond, in theory, when no immediate cash return is expected from land investment. In practice, the rate of return allowed public businesses should be equal to what could be had in other opportunities, assuming risk always. Since there is always, except in the case of unproductive land held for purely speculative purposes, some cash return to land investment, it is clear that the method is unfair to consumers of public utility services.

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[16] *Steenerson v. Great Northern Railway Co.*, 72 N. W. 713, 718.

In re Gas and Electric Rates of the Queens Borough Gas and Electric Co., 2 P. S. C. 1st D. (N. Y.)

Moreover, the method would carry with it all the difficulties of corporate reorganization. It would not be difficult to reorganize and capitalize the appreciation in value. This might be prevented by accurate regulation, but there is no necessity for creating the problem.

The third contention, excluding appreciation in land value altogether, comes closer to meeting the requirements of the investment theory. In this case original cost is taken as fair value and a normal return is allowed. Since this is exactly what any investor in other enterprises gets in the normal case, it appears that equal treatment is attained.

However, if appreciation is excluded, depreciation must also be excluded, and thereby a risk of business is removed. Thus not only do we eliminate the higher expense levels embodied in the other methods, but in a positive way reduce expense levels still further by eliminating an element of business risk.

With the gradual approximation of conditions of more equal production opportunity through the limitation of size of land holdings, agricultural and urban, another problem will arise in connection with public utility lands, especially railway rights of way and terminals. This is the problem of public ownership of the lands of public service corporations. To this problem we devote a chapter later.

Depreciation

Machines, etc., wear out or become obsolete and must be replaced currently in part and finally in whole. Of the fact of depreciation there is no doubt. The relation this fact bears to investment is not so clear. The question is, and it is obviously one of large import, does cost new or cost minus depreciation represent investment?

The answer to this question depends (1) on the point of view in defining the relation of depreciation to investment; (2) on the nature of the business, whether or not there is a normal depreciated condition; (3) on the expediency of accumulating depreciation funds where normal depreciation exists; and (4) on whether or not the utility is regulated for the first time.

Depreciation is ordinarily defined as decline in productive power and depreciation fund as the amount necessary to keep the investment intact. The value of a production good depends on the estimated value of the final goods it can turn out during its lifetime. Since the capital good normally wears out and must be replaced, a fund for replacement must be created to keep intact the original investment. Depreciation is thus a cost of production which price must cover. For instance, a particular class of capital goods may have an average life of ten years and be capable of turning out goods with a net value of $1,000 annually. The value of the capital good would be something like $20,000 if the interest rate is 5 per cent. The gross income would have to be something like $3,000 annually, for approximately $2,000 a year for ten years would be required to replace the machine at the end of its life. After five years of service, the machine would be worth only $10,000 for it has only five years of productive life left. Its productive power, in other words, is decreased by one-half. Meanwhile a fund of $10,000 would have been created and the investment would be intact.

Another formulation of the same doctrine may be made in terms of productive efficiency. Undoubtedly, if renewals are made promptly, productive efficiency remains constant after a condition of normal depreciation is reached. But if we consider the plant as new and then in a state of normal depreciation, we discover a decline in productive efficiency, for productive efficiency, significantly enough, is interpreted to relate to cost per unit output. It is well known that in the earlier years operating costs are less than after the normal depreciated condition is reached. If capital is amortized or if additions and betterments are made from a fund accumulated during these years, and no return is allowed on these improvements, while operating costs are increasing fixed charges are diminishing and the total costs per unit output may remain constant. In this sense productive efficiency may be said not to decline.

In this view, of course, cost new less depreciation would be the criterion of investment. It matters not what disposition was made of the fund. It may have been paid out as dividends which would amount to dividend payments out of capital, or it may have been put back into the business, in which case cost new less depreciation would tend to equal original investment, or it may be held as a fund which may be invested in outside securities or what not. The original investment has not been invaded in valuation. It seems all very simple that if property is half worn out, as it would be at the end of five years in the illustration we have been using, it represents only half the original investment. But is it so simple after all?

Clearly, the whole reasoning is from a market value point of view. Of course, no one would give as much for ten machines half worn out as for ten new ones. If one grants the point of view, and if a depreciation fund must be created to keep investment intact, the conclusions seem inevitable. But we are not seeking market value; we are looking for fair value. It may be that the two are the same, but this is, by no means, a necessary fact.

This leads us to discuss the nature of a business with normal average depreciation. In a business so large, and with such varied capital items bought at different times, as the railway business there are always some items about new and some items about ready for scrapping. That is, the railway business is always about half worn out. More accurately, if we take into account salvage value and dynamic conditions, the normal average depreciation may be said to be about 40 per cent.[17]

If we follow out the productive power theory we would have, assuming the same ten machines for purposes of illustration,[18] a fund accumulated composed of the following amounts: $20,000 for the machine ready for scrapping, $18,000 for the machine ready for scrapping next year, etc., down to $2,000 for the machine in use for one year plus $20,000 accumulating during the year, or $10,000 for the whole year. The formula N(N/2) (average annual depreciation per machine) gives the same result. Applying the formula, or adding up the amounts, we have, after five years, a fund of $100,000, or half the original cost. The figures, for simplicity's sake, disregard dynamic conditions and salvage value. Now it is perfectly obvious that under conditions of average normal depreciation an annual fund of $20,000, without the accumulated fund of $100,000, would easily maintain the efficiency of the ten machines. This fact has led some to deny the usefulness of an accumulated fund.[19]

Those who hold that the accumulation of a depreciation fund is unnecessary in the case of a business with an average normal depreciation must hold that there is no relation between mere aging, or even physical wear and tear, and the diminution of investment. Although from the productive power point of view the machines may be half worn out, the original investment may be intact. "When capital goods are installed their cost is a definite amount of investment; when they are retired from use the investment is diminished by the amount of their cost minus salvage. If the capital goods are replaced promptly when retired, is not the amount of the investment in every real sense kept intact?"[20]

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[17] The determination of the approximate percentage normal depreciation is an engineering problem. We may assume 40 per cent for purposes of discussing the economic results of an average normal depreciation.

[18] *Supra*, p. 57.

[19] Young, A. A., *Depreciation* in *Quarterly Journal of Economics*, Vol. 28, p. 630. See controversy between Young and Davis concerning the depreciation problem in *Quarterly Journal of Economics*, Vol. 29, pp. 378–395.

In the illustration we have been using, this view would require only $20,000 annually and not the additional fund of $100,000.

All would grant immediately that the fund must be considered, and cost new less depreciation be used to represent investment, if legally the fund was required. Two questions arise: first, is it economically expedient to require the fund, and second, in the case of newly regulated companies, is it just to assume that the fund has been or ought to have been created?

We take up the case of newly regulated companies first. Is fair value attained by using cost new less depreciation to represent investment? To use this basis is to assume that the productive power theory ought to have been in operation in the past. Certainly depreciation has taken place. Equally certain is it that depreciation is an operating cost. But no reason appears for assuming that a particular theory, however strongly one may think it suitable for the future, has been operative in the days of non-regulation. Whether or not depreciation ought to be deducted seems to depend on the facts in the case. If it has been customary in the past for businesses to accumulate such a fund which has been used for amortization or for extensions, it is probable that depreciation ought to be deducted. On the other hand, if it has not been customary to do this thing, and if no fund has been accumulated, there seems to be no good reason for deducting depreciation. It would seem that to do so would be to penalize business for the mistakes of government or the public. The question is one of fact.

Theory, however, may throw some light on the situation. As a matter of pure theory, it seems probable that under competition, in permanent businesses where there is a normal average depreciation, potential competition would eliminate the accumulation of such a fund, for lowest expense levels would obtain. In the case of monopolistic businesses, theoretically, earning power would not be dissipated if the fund was never created. The theoretic fund might well have been paid out as dividends without in the least affecting earning capacity. It would not, therefore, amount to payment of dividends out of capital.

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[20] Young, A. A., *Depreciation* in *Quarterly Journal of Economics*, Vol. 28, p. 634.

The question then becomes: What were the conditions of investment? Those who hold the productive power theory would maintain that the lower operating costs and the assumed higher profits during the earlier years, in reality, amount to a re-payment of investment. This, however, is not clear. It may be that these lower operating costs were a part of the total situation inducing investment of capital in the business. One cannot assume with certainty that operating costs should have been charged with any fund beyond that necessary to maintain properly the plant through repairs and renewals. It seems very likely, and it is backed up by a theoretical position, that current business policy did not require the accumulation of any such fund. In this view, original investment comes to be the criterion of fair value, and the productive power theory, with its deduction of depreciation, is cast aside.[21]

It may be, of course, that once a company is regulated, it is expedient to require the accumulation of a fund and to pass over to the productive power theory. This is one question. What has been in the past is quite another. The presumption is strongly against deducting depreciation in the case of newly regulated companies. In what seems to us sound, Mr. Allison says:

> "In the case of an heretofore unregulated company it cannot be shown that the company ought to have set aside depreciation charges

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[21] Professor A. A. Young says: "It seems very probable, and properly so, that business policy was not framed to the marketability of capital assets. We cannot assume that where realized depreciation is easily and normally met out of operating expenses, and where unrealized depreciation in market value has not been charged to operating expenses, nevertheless, such unrealized depreciation is a virtual operating expense". *Depreciation* in *Quarterly Journal of Economics,* Vol. 29, p. 383.

> to accumulate a fund equal to theoretical depreciation for such a fund would be useless. The conclusion seems clear, then, that in all ordinary cases of heretofore unregulated properties we cannot justly depreciate to obtain fair value unless we admit the justice of ex post facto laws or equivalent regulation or unless we interpret fair value to mean market value and not just amount."[22]

In the event that depreciation has been allowed to go to the point of falling below normal, it seems, logically enough, that such depreciation should be deducted, for this is an evident instance of payment of dividends out of capital or of unfortunate investment, in either of which cases the investor should stand the loss.

It will naturally be argued by the productive power theorist that, although it may have been done innocently enough, profits have been overstated, dividends have in reality been paid out of capital, stated surplus is in part spurious.[23]

However, it is believed that Professor Young is right when he says:

> "In general, there is a reasonable presumption that the investment in the undertakings which have not accumulated a depreciation reserve were not made with the expectation that it would be necessary to charge accruals to operating expenses. If follows that it cannot in general be presumed that the profits of such undertakings have contained an element which should unquestionably be considered repayment of part of the invested principal. Accordingly, serious objection might properly be made to a system of accounts which requires that property already on hand be written down for depreciation."[24]

The next consideration is the question of the expediency of requiring a fund under regulation. It may be well to announce the policy of requiring the creation of a depreciation fund in cases of companies under regulation. The validity of the policy hinges on the effect of the fund on the level of expense. If, returning to the same illustration, the $100,000 fund is accumulated, either one of two things may happen. First, the fund may be used to amortize depreciation, and investment will decline to $100,000. The public has paid a lump sum into the company which is to be regarded as a sort of public investment, in other words, it has purchased an annuity. Second, the fund may be used for extensions, etc., in which case the company investment stands at $200,000 instead of $300,000, to which sum the investment would have been raised had the company made the additions from new capital. Again the public has bought an annuity. If the rate of return allowed the company is approximately equal to competitive rates of return, it is obvious that the level of expenses would be unaffected. If, however, the rate of return allowed the regulated concern is larger than the competitive rate, it is clear that the result is a lowering of expense levels. The opposite theorem is valid. Under the theory of fair value here presented, rates of return under regulated monopoly and competition would be the same, and the level of expenses would, in the long run, be unaffected.

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[22] Mr. Allison's position is found in Appendix A to the Report of the St. Louis Public Service Commission on the United Railways of St. Louis, p. 99.

[23] Mr. Davis takes this position in the controversy between Mr. Young and himself in *Quarterly Journal of Economics*, Vol. 29, p. 395.

[24] Young, A. A., *Depreciation* in *Quarterly Journal of Economics*, Feb., 1915, p. 369.

However, the distribution of expenses presents a difficulty. Obviously, the consumers during the period in which the fund was being accumulated would be in part paying future expenses. To what extent the present should thus endow the future is a delicate problem. In general, it is believed that each generation should pay the costs of the services it enjoys. From this point of view, then, one might well be justified in denying the expediency of creating depreciation funds under conditions of normal depreciation.

From this point of view, however, a distinction must be drawn between new companies and old ones with established credit. Businesses seldom spring complete into existence. If successful there is more or less rapid extension. It may be well under these conditions, before credit is well established, to require some sort of a fund, although it need bear no particular relation to theoretical depreciation. This is a case where necessary returns would be higher than under conditions of established credit and therefore the tendency would be to lower general expense levels. This having been done the company would soon reach the state of normal depreciation and would be in the same position as old companies. This fund is not a depreciation fund in the sense that the productive power theory interprets that concept. It is a fund used to meet certain conditions prevalent in the early stages of a business. In fact, it is similar to the fund we believed ought to be allowed to cover up fluctuating receipts.[25]

Functional Depreciation

Functional depreciation may be defined as lack of adaptation to function. This sort of depreciation may be due to dynamic conditions which render a plant inadequate or to improvements which render it obsolete. Inadequacy ordinarily may be foreseen whereas obsolescence usually cannot. Consequently, it exists as a risk of the business. Risk involves expense and this expense must ultimately be paid by the consumer.

A very great difference, however, exists between obsolescence in competitive businesses and in regulated monopoly businesses. If, under actual competition, although this would not be true under perfect competition, an improvement renders a capital good obsolete, the producer is forced to replace the item. This is not the case under regulated monopoly. Unless the saving in operating costs is as great as the increase in capital charges due to the installation of the new machine, the old machine may well be continued in use. In this view, a capital good becomes obsolete only when its retention would maintain a higher expense level than would obtain with the introduction of a new capital good in its place. Unforeseen improvements need, therefore, present no difficulty. And since capital goods wear out rather rapidly, the substitution can take place without much delay.

Thus, although it seems impossible that obsolescence "mortality tables" can ever be constructed, regulation affords insurance against fortuitous changes. The premium would be represented by the temporarily higher expense level due to retaining the old capital good. This sort of insurance has the same economic validity as all other insurance: a permanent lowering of expense levels through the elimination of risk.

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[25] *Supra*, p. 49, *et seq.*

This theory of obsolescence applies to a class of items usually treated under the head of discarded property. Usually in any large public utility that has been operating for any length of time there are certain items that have been discarded. For instance, a certain station site may have been abandoned. This will probably be held until it can be sold at an advantageous price. Such an item is really an obsolete item from the point of view of the public utility and must be excluded from value. Certain portions of the plant may have been discarded, but may be held for emergency purposes. If the emergency is a real one, such an item is a part of the cost of the service to the public, and it must be included in value. It is sometimes argued that it should be included at its emergency value.[26] In the case of a lot used for storage purposes, if a cheaper lot would do as well, it is probable that the value of the lot should be placed at the lower figure. For, reasonably enough, it may be assumed that the company will not discard items having left in them any appreciable degree of earning capacity. Under the theory of obsolescence outlined above when an item is discarded it is scrapped. Meanwhile, all renewals and repairs have been properly cared for. In order to keep the item in the business as a possible emergency item, it is necessary only to allow its scrap value.

Two facts tend to simplify the inadequacy problem in the case of railways: first, the size of the business and the variety of capital goods, and second, the relatively small units of capital goods.

The first fact results in what may be called partial inadequacy. For instance, it may become necessary to replace light with heavy rails, or less powerful with more powerful locomotives, but the replaced items are useful on divisions of lighter traffic or for sidings, switches, etc. Thus, although inadequate for one purpose, such items are entirely adequate for other purposes. Most items of capital in the railway business are of this character. Since on account of size, replacements are being constantly made anyway, the problem of inadequacy does not assume a very serious aspect. This sort of inadequacy may be met easily from operating expenses, although the difference in cost between the new instrument and the old one should be charged to capital expenditure, for by so much it represents new investment. If this is not done no return should be allowed on the difference for it assumes the nature of a public investment. On the same grounds as before indicated, the distribution of costs requires that it be accounted a capital expenditure.

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[26] Whitten, *Valuation of Public Service Corporations*, p. 190.

The second fact relates to saturation. Since inadequacy of this sort is overcome by additions of capital goods of the same sorts, there is no necessary scrapping. In the case of a gas company, for instance, the substitution of four-inch mains for three-inch mains requires the scrapping of the three-inch mains, for there is ordinarily no present use for them. But not so with the railway business. The addition of ten freight cars does not require the scrapping of anything. The fact of relatively small capital units thus greatly simplifies the inadequacy problem. Of course, such expenditures are charged to capital.

Some items of railway property do not fall under this position. If it becomes clear that a large station must be replaced in a short time on account of inadequacy, it must be provided for by the accumulation of a fund of sufficient size to finance the deal.

Some theorists have carried the functional depreciation idea to an extreme length in the notion of hypothetical functional depreciation. It is argued that particular items of capital lose in value each year because of the reasonable certainty that they will be superseded before the end of useful life. In the first place, such hypothetical depreciation does not represent any investment. In the second place, under the theory of obsolescence here suggested such replacements would be guarded against. And in the third place, even if one agrees with the general point of view, it is only when the actual supersession takes place that the old item is really depreciated.[27]

Obsolescence often results from consolidation. The argument is advanced that a return should be allowed on the total investment in the constituent plants. This contention rests evidently on the assumption that all physical construction costs are legitimate elements in value, and is normally true. But if investment is high because of clearly unnecessary expenditures the case is one of unwise expenditure and no return is allowed. This seems to be the logical position to take in the case of supersession due to consolidation.[28]

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[27] This point is discussed in Whitten, *Valuation of Public Service Corporations*, p. 381.

Accrued functional depreciation should be treated in valuation precisely as accrued physical depreciation. If the market value point of view is held, which we have indicated we cannot subscribe to, accrued depreciation would be deducted. But we hold that the fiscal history of the road should be appealed to and that investment should be determined as accurately as possible. If records are available it may be possible to show that functional depreciation should sometimes be deducted, but the presumption is strongly the other way. This may be irritating to the public, but it is just: the public fixed the rules of the game and it ought not to change them retroactively.

ABNORMAL DEPRECIATION

A class of items that presents many uncertainties may be called abnormal depreciation. For instance, a flood may wash away bridges, tracks, etc. Where this occurs in a non-flood district and is entirely unexpected, the loss should be borne by the investor, probably through assessment, as it is necessarily borne by other investors in various lines of production; where, however, the risk may in part be foreseen it will ultimately be borne by the consumer. It is probably better to bear it directly through slightly higher rates which will accumulate a fund which may be put into the property and held as public investment. Should the damage actually come and the property be destroyed the public loses its investment. Meanwhile, by taking the risk from private investors the level of expenses has been lowered.

Another possible way to treat such items turns on the question of responsibility. Since unforeseen losses of the sort mentioned are due to no fault of the investor, it is argued that the investor should not bear the loss. The service is socially necessary and the consumer should sustain the loss. This position has merits, but it is not in line with the doctrine of equal opportunity. Under competition, the investor would bear the loss in a case of this kind. Under regulated monopoly, equal opportunity is established, if likewise the investor suffers the loss. The risk is so intangible that it is hardly possible to estimate it and lower returns accordingly, which would be necessary under the responsibility test.

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[28] *In re Application of the La Crosse Gas and Electric Co.*, 8 W. R. C. R. 138, 172.

Non-physical or Intangible Items

So far we have considered the costs of physical items. There are several categories of non-physical items that must be considered. These sorts of items may be grouped as (1) overheads, (2) going value, sometimes confused with going concern value, (3) bond discounts, and (4) risk.

Overheads

Overheads include such outlays as expenditures for engineering and superintendence, promotion and organization, contractors' profits, legal advice, contingencies, and loss of interest during construction. That such expenditures are necessary is clear. In theory, no difficulty is presented in dealing with these items. Actual bona fide outlay represents the amount that should be allowed in value. In practice, where it is possible to discover the actual outlays the problem is simplified. And as regards the future, accounting systems can obtain these facts. As regards the past, however, it is not always possible to get the actual outlay. Here it is necessary to estimate overheads, which is usually done by the comparative method. And although conditions are never exactly alike, and therefore the method is only a rough one, it has been found that anywhere from 10 per cent to 12 per cent of the inventory or physical value is usually a fair amount to allow for overheads.[29]

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[29] The Wisconsin Railroad Commission which has done more than any other in the matter of cost analysis and careful comparative studies allows this amount. See Whitten, *Valuation of Public Service Corporations*, chap. 12.

On the theory that overheads vary with the value of the physical items, it is sometimes argued that they should be depreciated in like ratio to physical depreciation. In case cost new less depreciation is adopted as the criterion of value this would be a logical corollary. In case cost new is taken as the basis of fair value, obviously no depreciation of overheads would appear. It is the same problem that was met in the case of physical depreciation. As regards the future, the point will be discussed under the caption "capitalization vs. amortization," and it will be urged that such items of expense should be capitalized.[30]

In regard to the past, just as we hold that physical depreciation which is not below normal should not be deducted, so must we hold that overheads must be allowed at full value in rate cases. It may be urged that surplus profits represent an amortization of these non-physical items, but for precisely the same reasons that we set forth in the case of physical depreciation we are forced to conclude that this would be an example of retroactive regulation of an unfair nature.[31] Since, if the physical plant should disappear there would be no source of income and non-physical items would be valueless, the position outlined can only hold to the point of normal depreciation. If depreciation has gone below the point of normal, investment has been invaded and overheads ought to be depreciated to the same extent.

GOING VALUE

Going value is often confused with going concern value, but there is good ground for careful distinction between them. Going value may be defined as the reasonable cost or financial sacrifice of building up a business which will yield a fair return upon the fair value of the physical and non-physical items in cost.[32] Going concern value may be defined as the cost of creating an income. We may most easily clear up these definitions and disclose the vital differences in the two concepts by illustrations of the methods employed by advocates of the two theories. In the theory of going value the method employed is ordinarily called the original-deficits-less-subsequent-surplus-profits method. The plant is charged with all reasonable costs during the first year. To this amount is added the cost of extensions, interest on investment, depreciation, operating expenses, and sometimes land appreciation. Total earnings are then credited. The balance between debits and credits is regarded as the cost of the plant at the end of the first year; this amount is then carried forward as the cost for the second year and the process rēpeated until the year of valuation. If the amount exceeds the actual amount of money put into the business it is assumed that the company has failed to earn a fair return on the investment.[33]

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[30] *Infra,* p. 83.

[31] *Supra,* p. 57, *et seq.*

[32] Erickson, Halford, member Wisconsin Railroad Commission, gives substantially this definition in a pamphlet on *Going Value,* Madison, 1914.

This method discloses the actual deficits during the period when the business is getting on its feet. Such deficits are unavoidable and are legitimate costs of the service. If the deficits are completely made up a reasonable return has been earned, while if they have not been made up completely a reasonable return has not been earned, which return should then be allowed in the future.

It may be asked with superficial show of reason why surplus profits are used to offset original deficits and not used to offset overheads or invested surpluses. The answer rests in the fact that deficits would be wiped out if subsequent earnings permitted. Ordinarily, deficits would be expected, and ordinarily it would be expected that they would be made up from earnings at a later day. If such is the case, and the deficits have been made up, the investor is treated fairly.

This method just covers the cost of building up a paying business where paying is interpreted to mean a fair return on investment. Since it, therefore, closely corresponds to what would happen under normal competition, and thus establishes equality of opportunity, it is the method sanctioned by the investment theory of fair value.

This method may give erroneous results unless great care is exercised in the choice of costs. For instance, in some cases full appreciation in land value has been allowed.[34] Since interest is allowed on this appreciation, the final result is to allow appreciation plus compound interest, at the assumed fair rate of return, on appreciation, which is manifestly contrary to all the principles of equal opportunity. The investment theory is satisfied only if appreciation in land value is excluded altogether.

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[33] Erickson, H., *Going Value*, p. 16 *et seq.*

Danger lies in the treatment of depreciation of capital goods. If the depreciation used in finding going value is the actual amount expended for renewals and repairs, the method results correctly. But if the depreciation used is the difference between cost new and cost new less depreciation, there is evidently a fund created by the consumers upon which they are compelled to pay interest and which in reality has never been expended by the company. Not depreciation fund, but actual payments for renewals, etc., should be used in finding going value.

An objection which, if sound, would invalidate the whole theory of going value is that the normal rate of return includes an amount which represents a return on the capitalized value of normal deficits. This assumes that under competition the marginal producer cannot amortize deficits, but can get only a normal return on such outlays. And while it is quite true that price would tend always to the lowest point, or that deficits would be capitalized and not amortized, for the great majority of competitive businesses these deficits are negligible, since the businesses begin in a small way and grow gradually. In the case of businesses which are established on a large scale, or which are monopolistic, deficits can usually be made up. Consequently, the normal rate of return does not include the capitalized value of any deficits.

In contrast with the theory of going value is the theory of going concern value. This theory is well expressed by one of its leading exponents as follows.[35]

"Going value is defined as the value of a created income. While it pertains to the business rather than to the physical plant, it is nevertheless true that in any just determination of the reproduction cost of a property it is as real an element in this reproduction cost as is the cost of reproducing pipe lines, etc. As a means of determining going value, the comparative method is suggested. This consists in an analysis of the relative net earnings or return to be derived from the existing plant as compared with that from a hypothetical 'comparative plant' which is assumed to be built on the date of valuation and to acquire the business of the existing plant in the territory served by it, as rapidly as possible, under non-competitive conditions. The sum of the present worths of the annual excess in net earnings, or return, from the existing plant as compared with those from the comparative plant, in the period of years from the date of valuation to the time when the earnings of the comparative plant can reasonably be assumed to equal those of the existing plant, is then the measure of the going value of the existing plant. *It represents the amount which the purchaser could afford to pay for the existing property with its established income, in excess of the value of its bare physical plant.*"[36]

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[34] *State Journal Printing Co. v. Madison Gas and Electric Co.*, 4 W. R. C. R. 501, 580.

[35] Alvord, J. W., *Proceedings* of the American Water Works Association, 1909, pp. 184–279.

Put into figures, this last sentence means that if $100,000 has been invested in physical items, if the annual return is $20,000, and if the ordinary interest rate is 8 per cent, since the plant would be valued in the market at about $250,000 the going value is $150,000, for that sum represents the amount a purchaser could afford to pay for the plant with its established income, in excess of the value of its bare physical property. It is evident that this method assumes the whole point to be proved. It assumes that the existing income is fair. If that is true it is more or less a waste of time to find "going value." And it is certainly a perversion of logic to assume an income fair in order to prove it fair. The trouble with the method lies in the fact that it attempts to approach the problem of fair value from a value point of view rather than from a cost point of view.

The result of this method we call *going concern value. Going value* we use to refer to the results of the method which discovers actual deficits. This distinction is vital.

We need not delay the discussion to take up the conjectural nature of the developmental period. While it might be worth while to go into a discussion of this point if there were any semblance of validity in the so-called comparative method, it is so obviously fallacious that no good can come from showing up minor weaknesses.

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[36] Italics by the author.

BOND DISCOUNTS

Three elements may be present in bond discounts: brokerage charges, deferred interest, and poor credit.[37]

Brokerage charges may be defined as the "expense necessary to be paid a reputable broker for making a full investigation into the costs and prospects of an inviting public service enterprise and a reasonable compensation for inducing his clientage to invest in well secured bonds and securities of such corporation."[38] This item is clearly a cost of the service to the public. All this assumes, however, that the relation between bonds and stocks is reasonable. If a company should attempt to finance its whole construction by bonds, this would, evidently enough, not be a legitimate financial transaction and bond discount would be excluded from value. Probably bonds should not often exceed 50 per cent of the total outstanding securities or rather investment. With the growth of regulation, this percentage may well rise to 70 per cent or even to 75 per cent of investment, for regulation should always have in mind the approximation of investment rather than speculative conditions for public utilities.

A normal brokerage charge is about 5 per cent of a bond issue. However, the actual brokerage charge paid must be the criterion of value. If the amount paid exceeds 5 per cent there is prima facie case against allowing the excess.

Aside from brokerage charges, discount may be due to monetary conditions. If the ordinary interest rate on well secured bonds is 5 per cent and bonds are issued at 4 per cent it is evident that such bonds would sell somewhere around 85. This sort of discount is equivalent to deferred interest payment. Interest at 4 per cent plus a fund accumulated to pay off the discount at maturity would amount to 5 per cent. The total payment made by the consumer would not be different in the two cases. Fluctuations in the money market necessitate selling bonds below par. There can be no doubt of the legitimacy of such a transaction, and the discount should be cared for in rates.

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[37] Capitalized risk might appear in bond discount. But it is undoubtedly preferable to take care of this item under stock discount.

[38] Whitten, *Valuation of Public Service Corporations,* p. 268.

The money market may fluctuate so as to cause bonds to sell above par. In this case the premium should accrue to the consumer who must pay the interest charges.

Bonds may sell below discount because of bad credit. In this case, if the discount is taken care of in capitalization or in rates, the poorer the credit of the company, the higher the capitalization or the higher the rates. In fact, the consumer should pay nothing for poor credit, no matter to what it may be due. If it exists, the investor should suffer any resultant loss.

Where outstanding bonds, or bonds and stocks, are grossly in excess of investment, no consideration should be given to bond discount in general. It is clear that bonds and stocks must bear a reasonable relation to investment before any general allowance for discount is legitimate. However, a reasonable brokerage charge on that portion of the bonds which do bear a reasonable relation to investment may properly be allowed.

Franchises

In cases where franchises have been paid for openly by the public utility they must be allowed in value. The practice of charging for franchises is not general and should be discontinued for it is manifestly a vicious method of taxation. Since the function of a franchise is to guarantee investment permanency, it should be considered only in a purchase case.

Risk

Risk is a cost of production that must be paid by the consumer. This problem is treated in the section on the rate of return.[39]

Standardized Operating Costs

Aside from the determination of the investment in the plant, fair value requires the determination of current expenditure or operating expenses. The importance of this phase of valuation is evident when it is recalled that from 65 per cent to 70 per cent of the gross incomes of railways is used in operating expenses. The problem is: How determine if this expenditure is fair? This brings us face to face with the problem of efficiency. If the railways are run efficiently, the expenditures are fair; if inefficiently, the expenditures are unfair. If the latter condition prevails the question becomes: May regulation effectively take steps to penalize bad management? On the other hand, the question of rewarding exceptionally good management arises. Would the cost of such a degree of regulation completely defeat its own ends? Supra-marginal or sub-marginal management can be determined only if marginal costs are determinable. A question of much import then is: What are the methods by which marginal costs are determined? These are all questions of standardized operating costs.

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[39] *Infra*, p. 78.

Are the railways run efficiently? There has been much talk of late about the inefficiency of American railways, all of which has been summarized in the catchy expression, "wasting a million a day." The authority for this statement arrived at his conclusions by applying the results of certain experiments on the Atchison, Topeka & Sante Fe Railway Company to the railways of the country as a whole.[40] Conditions were exceptional during the time of these experiments, for a strike had just been closed, and high speed steel for cutting, etc., had just been introduced, both of which conditions would tend to lower costs materially. Moreover, certain units rested on the fallacious assumption that costs of repairs varied directly with weight, as, in the case of locomotives, it was assumed that one locomotive twice as heavy as another would cost twice as much to keep in repair. Consequently, not much reliance can be placed in the conclusions reached in this case.

Nor can one very satisfactorily compare railways with ordinary manufacturing plants and mercantile businesses in the matter of efficiency. Four reasons may be assigned for this: (1) the large area and extent of activity of the railways, (2) the lack of uniformity in the nature of work in most parts of the railway business, (3) the necessity for continuous service in the railway business, and (4) the tactical position of labor unions, such as the Brotherhood of Locomotive Engineers. It is very likely that increased efficiency could be obtained by applying the principles of scientific management to some of the shops of railways, but this system cannot be assumed to be applicable to the railway business as a whole.

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[40] Mr. Emerson is the authority for the statement. See Cunningham, W. J., *Scientific Management in the Operation of Railroads* in *Quarterly Journal of Economics*, 25: 545 *et seq.*

Even if it could, it would be unfair to assume that a system which is new, and in effect in less than 1/10 of one per cent of the manufacturing businesses of the country, ought to be in effect in that business—the railway business—where obviously its application would be most difficult.[41]

Unit operating costs will not furnish safe bases for efficiency determination. Such unit costs to be of service would have to be quite accurate, which would require a classification of roads, a classification of functions, and a classification of types. The latter two classifications would be easy enough to obtain, but the former is very difficult, if not impossible. The classification would have to take into account grades, curvature, density of traffic, directional density of traffic, nature of traffic, number of stops per mile of line and their distribution, water supply, and many others. Such a classification which would result in any considerable grouping seems utterly unattainable, and certainly would not be serviceable within sufficiently fine limits to afford statistics of efficiency.

Within very broad limits statistics of operation are useful. In the trunk line territory, for instance, one road may show a locomotive performance sheet with 13 cents per locomotive mile for repairs while the average for the territory may be only 8 cents. Such a condition would suggest inquiry as to the cause of the apparently excessive unit costs. For this and other reasons, statistical departments compile and disseminate information on every important detail of operation; the units are compared with the units of other roads, with divisional units, and with units for other periods.[42] Thus do railways check up unit costs.[42]

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[41] *Decision* of the Interstate Commerce Commission *in re Advance Rate case,* Feb. 22, 1911.

Moreover, through various associations, such as the American Railway Association, the Master Car Builders' Association, the Master Mechanics' Association, and others, the railways practice free exchange of ideas and methods. These associations make careful studies of the most approved ways of doing things, and careful tests of the most approved instruments for doing them. One may cite the efforts of the Master Car Builders' Association and its experiments with the air-brake apparatus, or the efforts of the Master Mechanics' Association to develop a super-heater and mechanical stoker, or the efforts of the American Railway Association to establish a clearing house for interline car records. Thus in many ways are the railways achieving standardized conditions of operation and standardized costs of operation.[43]

It has been pointed out that

> "in the course of railroad development, there was first an era, which was the era of railroad building. Any railroad was better than a wagon road. There was next an era of coordination of the railroad service and finance to the commercial and financial conditions as a whole with which the railroads were called upon to deal. This was the time of traffic organization and railroad consolidation. Next came the era of internal adjustment on the physical and mechanical side: the perfection of machinery, cutting down grades, strengthening bridges, increasing the train unit. And now has come the era of sociological adjustment. The human part of the machine is quite as vital as the steel and wooden part in producing efficiency, and so in increasing income."[44]

To meet this need the railways are pursuing an educational policy through changing organization, apprenticeships, and vocational schools. The effort here is to secure efficiency by developing men capable of performing the exacting duties of railroading.[45]

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[42] Cunningham, W. J., *Scientific Management in the Operation of Railroads* in *Quarterly Journal of Economics,* 25: 556.

[43] *Ibid.,* p. 556.

[44] Eaton, J. S., *Education for Efficiency in the Railroad Service,* U. S. Bureau of Education Bulletin, pp. 1–11, 1909.

[45] *Ibid.,* p. 73.

That there are some evidences of inefficiency in the railway business is indisputable, but that the railways are less efficient, in view of the problems they must face and in view of the men available for railway service, than the average mercantile or manufacturing plant is very doubtful. That they are making laudable efforts to secure efficiency is clear: that they are tending to standardize costs is also evident, and the very process of standardization means greater efficiency. We have no way of telling with certainty just what is the status of efficiency, but we have good evidence that it approximates the average of efficiency in other lines of production.

Can regulation effectively increase railway efficiency? First, can this be done by supervision of operating expenses? It is doubtful if the government, or any one of its agencies, is in position to keep up with the progress of inventions, etc., as well as railway men. It would certainly necessitate large expense to do so. One may readily conclude that with efficiency approximating the average, the cost of any improvement, in so far as regulation is concerned, would offset any advantages. It would amount to substituting management for supervision and this is clearly out of the effective scope of regulation.

Through standardized reports, with scientific classifications of unit costs, regulation can assist in the development of standardized unit costs and thus in the development of efficiency. But further than this it cannot go. We conclude, then, that the operating costs of railways must be accepted as they are reported by the railways, and regulation be confined to securing correct and scientific reports.[46]

The Rate of Return

Obviously, this is one of the most important problems in valuation. The large investment in public service corporations makes it very significant whether 5 per cent or 10 per cent be the rate of return. The question we now attempt to answer is: What principles govern the determination of the rate of return?

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[46] Although the problem is not so complicated in the case of other public utilities, it is nevertheless true that regulation cannot go further than to secure proper reports.

The economic principles are not complex, but the practical application of them presents serious difficulties. Theoretically, the rate of return, assuming actual investment as the basis of returns, should be that rate which will draw into the public utility business that amount of capital which would flow into such businesses under the operation of the law of comparative costs. Certainly, if 20 per cent is used as the rate of return there would be an over-expansion of railway building relatively to needs, and if 2 per cent were used there would come about a condition of stagnation and under-building relatively to needs. The test of the adequacy of a rate is whether railway building keeps pace with estimated economic needs.

This rate would correspond closely to the competitive rate of return with certain risk adjustments. But the importance of the railway business requires over-building rather than under-building, and care should be taken not to bring about a condition of stagnation. It is better to err in the other direction. From the practical point of view, a categorical answer cannot be given to the question: What is the fair rate of return? All that can be done is to point out the theoretical principles, and the practical tests, and then leave it to some regulatory body to carry these, as closely as can be, into effect.

There are several classes of investors. For present purposes, we may divide them into three classes: (1) the conservatives, who want a high degree of security and consequently are willing to take a low rate of return, or those who are willing to invest in bonds of well developed companies, (2) the semi-conservatives, those who will take some risk and who want higher rates of return, or those who will invest in preferred stocks and discounted bonds of fairly well developed companies, and (3) the speculative class who want at once high rates of return and prospect of increase in value of capital items, or those who are willing to assume initial risks if fair prospect of return is offered.[47]

In financing concerns, all these classes of investors may at one time or another be economically appealed to, and regulative policy must take them into account. No matter how thoroughly risk may be eliminated after a plant is well developed, the fact remains that the undertaking of new enterprises is always accompanied by more or less risk. It is, then, in the first instance to the speculative class that appeal must lie. Uncertainty as to what the initial investor may expect leads to failure to undertake initial risks. Regulative policy should, therefore, be definite in the matter.

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[47] Allison, J. E., *The Rate of Return* in *Annals of the American Academy of Political and Social Science,* Vol. 53, p. 176.

Some believe that the solution of the problem of initial risks lies in capitalizing risk.

> "At the present time there is almost a stagnation in the building of public service plants or railways due in part to the uncertainty as to what capital may expect as a reward for initial risks. If a group of capitalists should determine that a certain interurban would eventually pay, and if they were to foresee that they were under no circumstances to be allowed to earn upon this enterprise a return any greater than they could obtain from a similar already established business, it is difficult to imagine that they would undertake it. Even if a commission were to assure them that they would be permitted to earn a very high rate of return for the first few years, as compensation for the risk, the immediate answer would be that the circumstances of a new enterprise would probably prevent the earning of a high rate of return during the initial period even if permission to do so were assured. The investors, therefore, would conclude that they would have small chance of compensation for initial risk; for no matter how promising the enterprise appears, the element of risk in a new business is always present. As time goes on and as the regulation of private capital in public service enterprises is better understood, it will probably be found necessary to allow a lump sum capitalization of initial risk as an inducement to obtain the capital, and this risk allowance will be permitted to earn reasonable returns as if it represented real money placed in the service of the public, the returns to be permitted after the enterprise has developed to the point where they can be earned".[48]

This position is not agreed to by all. Some believe: "The original investor is entitled to a return commensurate with the risks of the initial enterprise. This higher rate of return should continue for a reasonable period; which period, however, may be reduced by reason of actual excess profits sufficient to compensate for initial risks............ Public utility enterprises are, however, built up piece meal, and upon the actual risk incurred in each successive extension or improvement depends the fair rate of return that should be earned for a reasonable period upon each particular increment of the investment. It may be said that in a well established and successful enterprise all the capital needed for improvements and extensions can be obtained at a low rate of interest. This is true. But, nevertheless, extensions and improvements cannot usually be made without risk to the existing profits of the enterprise. The new extension may not pay for a few years and there is also the risk that it may never pay. This risk is borne not by the new investor but by the investors who already have their capital in the enterprise, the returns on which may be jeopardized by the failure of the new extensions to develop the expected business. The fair return on the new investment should be measured therefore by the actual risk to the profits of the enterprise by reason of the new extensions rather than by the rate at which the bonds can be sold to secure capital for the extension. The higher rate of return commensurate with the initial risk should be earned on each separate increment of capital for a reasonable period and the rate should then drop to the rate that would be demanded by a new investor in purchasing the securities of the company.''[49]

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[48] *Ibid.*, p. 175.

Both of these accounts of the problem recognize risk as a cost of production that must inevitably be paid by the consumer. They differ in the method of payment. The former holds out for capitalization of risk; the latter contends for rapid amortization of risk. The capitalization method makes a more definite offer in that it fixes a certain lump sum which is more tangible than the mere offer of higher returns, and therefore, has the advantage of certainty. It also appeals to investor psychology in that it offers opportunity for enhancement of property values. Stock bonuses, and the fact that $100,000 worth of 3 per cent securities will sell for more than $50,000 worth of 6 per cent securities, other things being equal, are evidences of this phenomenon. We do not attempt to explain this psychological fact; we merely note it. It may be urged that the capitalization method distributes the cost of the service rendered by a railway, for instance, over a longer period of time and that from the social point of view, since those who come after are to use the plant, this is desirable. On the other hand, it may be said that the risk is a cost which does not embody itself in any physical item and disappears with the development of the company. It may be urged, therefore, that it ought to be paid by those for whom it is undergone, as other risks will have to be paid in the future by those for whom they are undertaken. This position might well be used by the capitalizationists, for they would merely say that the risk was undertaken for all those who use the plant, and in the case of permanent plants, risk should be spread over the whole life of the plant by capitalizing it.

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[49] Whitten, R. H., *Valuation of Public Service Corporations*, p. 709.

Of the two methods, theoretically, it may be said that the one which offers greater certainty, other things being equal, is the more sound. This position would lead to the capitalization method. It seems to offer greater certainty, and, therefore, to eliminate some risk. From two points of view then risk should be capitalized. First, it tends to lessen the general level of expenses by affording greater certainty, and secondly, it spreads the total risk cost over the whole body of consumers for whom it was undertaken.

The appeal to all classes of investors tends to lessen the general expense level. The appeal is made, of course, through the issue of various grades of securities bearing different rates of return according to risk. By the speculative class probably a return of less than 8 per cent to 12 per cent would not be considered. The conservative class is willing to take 4 per cent to 5 per cent, but is unwilling to take the risk. Therefore, it would be impossible to finance a new enterprise, or an extension, at 4 per cent to 5 per cent, and it would be unnecessary to permit a general return of 8 per cent to 12 per cent as there is usually a percentage of the total investment which is secure enough to attract the 4 per cent to 5 per cent class. Thus by issuing various grades of securities it is possible, through risk allocation, to vary the rates of return in such manner that the level of expenses is reduced.

Capitalization versus Amortization

We have passed in review the various items that should receive consideration in value. In every case actual cost has been the controlling criterion. Some of these costs are embodied in physical items and some represent outlays for non-physical items. The question we now propose is: What costs should be capitalized and what costs should be amortized?

In general, it may be said that each generation should bear the costs of the services it enjoys. The present should not endow the future, nor should it saddle the future with debts. In the case of physical items, the present generation of consumers obviously should pay no more than necessary to hand them on to the next generation in efficient condition. For this reason, of course, physical items should be capitalized. For this reason also the accumulation of a depreciation fund beyond that necessary to meet actual renewals, etc., is not favored. The difference between cost new and cost new less depreciation, as interpreted from the market value point of view, is thus not amortized.

In the case of non-physical items, they should be amortized during the life of the plant, for in this manner each consumer pays a proportionate share of these sorts of costs. But since public utilities are permanent businesses, it would seem that such items should be capitalized and not amortized.

In the case of brokerage charges amortization should take place during the life of the bonds, for otherwise there is a cumulative passing of non-physical costs to the future.

Three Theories

Running through the discussion there are elements of three distinct theories: the investment theory, the cost of reproduction theory, and the market value theory.

The market value theory obviously denies the validity of rate regulation and, therefore, need not engage attention.

Of the cost of reproduction theory there are three types: (1) cost of reproducing the existing plant in the present, (2) cost of reproducing the existing plant under actual conditions of construction, and (3) cost of reproducing an equally efficient substitute plant or utilizing new opportunities. Of th investment theory there are two types: (1) investment interpreted as a function of one variable, i. e., actual cost, and (2) investment interpreted as a function of two variables, i. e., actua outlay and changing price levels.

It is perfectly obvious that investment interpreted as a function of two variables and cost of reproduction under actual construction conditions come to the same thing. The results are believed to be socially good.

The substitute plant doctrine must be discarded since it results in higher expense levels than exist if present plant is used.[50] The cost-of-reproduction-under-present-conditions theory approaches the problem from a private point of view and fundamentally destroys equal opportunity in its treatment of land.[51] The investment theory which fails to take into account changing price levels is subversive of equal opportunity.[52]

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[50] *Supra*, p. 44.

[51] *Supra*, p. 53.

[52] *Supra*, p. 32.

CHAPTER IV

FAIR VALUE AND THE MARGINAL RAILWAY

Two Margins

Two problems present themselves. First, where two or more railways serve the same points, ought rates to be based on the expenses of the most efficient road? Second, is it possible to reward superior business efficiency in fixing railway rates? These are known as the extensive and intensive margin problems.

The Extensive Margin

Remnants of competition in the characteristically monopolistic railway business give rise to the first problem. From the economic point of view, it would seem that, in the long run, the expenses of the most efficient road should control rates.[1] This would be a full application of the law of comparative costs, and would correspond closely to what would happen under normal competition, or under monopoly if monopoly were fully developed and regulated. Since it would mean, under present conditions, that the more inefficient roads could not be operated profitably, it has seemed to some that it is necessary to fix rates so as to cover costs of the less efficient railways. This would permit a price determined surplus, analogous to rent, to accrue to the supra-marginal road. There would be the same justification for diffusing such a surplus, through taxation or otherwise, as exists for diffusing all surpluses which arise from the fact of differential position or non-reproducibility.

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[1] Of course, at any particular time, rates woud have to be made high enough to cover costs on the differential roads necessary to handle existing traffic. The theory of competitive prices is here applied.

The contention that rates should cover costs on the marginal road may be disposed of briefly. In the first place, it would mean a contravention of the doctrine of comparative costs on a large scale and, therefore, an increase in general expense levels. In the second place, the policy of creating price determined surpluses would result in a vicious indirect consumption tax far removed from the fundamental basis of taxation. For these two reasons, rates based on the expenses of the marginal road cannot be justified.

Rates in this country are now so fixed as to cover marginal road costs which is a result of a misconception of the nature of the railway business.[2] Notwithstanding this, it is possible, by gradually changing the basis of rates to the costs as determined by the most efficient roads, to bring rate systems into accord with sound theory. Capital transfers could easily be made if sufficient time were allowed. Economically, such a transition is desirable and should become a tenet of regulative policy.

In the beginning, rates might be adjusted so as to prevent any expansion of the marginal road. Afterwards, a more thoroughgoing policy could be instituted. The result would be that the differential roads would become local and serve transportation needs in an economic manner—precisely what ought to happen.

If one could show that certain social and political considerations were of more importance than economic considerations, of course, the policy would be modified. For instance, the dispersion of population may be so desirable socially as to justify the extra cost involved in making rates on marginal road expenses. This would be analogous to costly tariff provisions which, entirely contrary to the principles of comparative costs, are justified for social and political reasons. The case, however, must be clear.

Certainly the present system which merely changes the location of cities from economically favorable to economically unfavorable situations is not justified. It is not likely that the percentage of population in cities would be appreciably affected, although the cities might be somewhat fewer in number and more populous, for granting the same inertia and business organization, the ratio of urban to rural population depends on the relative profitableness of industrial and agricultural pursuits. At any rate, the policy could be instituted and then if unsocial results should appear, which is unlikely, it could be stopped, and any approximation to more economic conditions would be desirable.

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[2] This condition is being perpetuated by the provisions of the Sherman Anti-trust law and the anti-pooling clause of the Interstate Commerce Act. Statutes, sooner or later, must recognize the essentially monopolistic nature of the railway business. Competition cannot be forced. Full monopoly, under government supervision, is the only feasible and economic development.

Territorial monopolization is a more difficult way of doing the same thing. Under this plan, the most efficient parts of the system would be used for through traffic and the differential parts for local traffic—precisely what would happen under a system of rates based on the expenses of the supra-marginal road. The difficulties in the way of achieving the monopolization scheme are numerous and obvious. The simpler way is to fix rates directly on costs as determined by the standard roads.

The Intensive Margin

Another phase of the marginal road problem arises in connection with the question of efficient management and wisdom in the choice of locations. This is the intensive margin problem.

If it were possible to work out some scheme of average operating costs, it would be possible to allow for superior managerial ability. But it is not possible, for the complexity of the railway business throws so many considerations into the study that statistics of this sort are unattainable. Within very broad limits, as we pointed out in the discussion of standardized operating costs, such figures are useful, but as a basis for the determination of efficiency in operation they are not, for they cannot be determined within sufficiently fine limits.

Maximum rates allow a certain play for efficiency and differential returns under improved operating conditions. Beyond this efficiency cannot be cared for. However, the investor is in no position to complain, for there is permitted to him what he could get elsewhere; the management cannot complain, for differences in salaries recognize differences in ability; and the consumer, if all roads are placed on the margin, has no ground for complaint, for marginal roads would determine rates anyway. Consequently, we conclude that it is not vitally necessary to allow for theoretical differences in efficiency.

The scheme of territorial valuation covers the case of superior judgment in the selection of rights of way, and penalizes bad judgment.[3] This plan needs some explanation. Suppose railways A, B and C serve two points D and E. And suppose the respective costs of the roads to be $20,000,000, $30,000,000 and $50,000,000, or a total of $100,000,000. This total would be the basis of rates. Assume 8 per cent to be the fair rate of return, or an annual territorial return of $800,000. Rates may be adjusted so that A will make $400,000, or 20 per cent of its cost annually; B, $200,000, or 6 2/3 per cent of its cost; C, $200,000, or 4 per cent of its cost. In this manner the road with the superior location would make a comparatively large return to its investment, and the differential roads comparatively small returns. This would allow for superior judgment in selecting locations; more significantly, it would put an end to the building of useless roads between competitive points; and it would have the effect of causing a transfer of capital from the sub-marginal to the supra-marginal road. Thus it would have the same effect that basing rates on the expenses of the most efficient roads would have. The total result would be to localize the less efficient roads. As a method of making the transfer to the cost basis, territorial valuation may be of profound significance.

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[3] Dunn, S. O., *Railway Efficiency and Advanced Freight Rates* in *Journal of Political Economy*, Feb. 1915, p. 142.

CHAPTER V

THE LEGAL THEORY OF FAIR VALUE

Judicial Review

The first significant fact in the development of the legal theory of fair value is the doctrine of judicial review. A very brief exposition of the leading cases in the growth of the doctrine will serve to give an insight into the legal attitude toward rate regulation.

In the Granger cases, 1876, of which *Munn vs. Illinois* is the best known, the Supreme Court of the United States held that the exercise of the police power in fixing rates was a legislative function and that the determination of reasonableness in rate matters was solely a legislative question. Said Chief Justice Waite, speaking of any public business:

> "It is insisted, however, that the owner is entitled to a reasonable compensation for its use even though it be clothed with a public interest, and that what is reasonable is a judicial and not a legislative question. As has already been shown the practice has been otherwise. In countries where the common law prevails, it has been customary from time immemorial for the legislature to declare what shall be reasonable under such circumstances, or perhaps more properly, to fix a maximum beyond which any charge would be unreasonable.... We know this is a power which may be abused, but that is no argument against its existence. For protection against abuses by the legislature the people must resort to the polls, not to the courts."[1]

Passing over minor steps in the development of the doctrine, we come at once to the next major step, the Minnesota Rate case of 1889.[2] In this case Mr. Justice Blatchford, for the court, said:

"The question of the reasonableness of a rate of charge for transpor-

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[1] *Munn vs. Illinois.* 94 U. S. 113.

[2] *Chicago, Milwaukee & St. Paul Ry. Co. vs. Minnesota,* 134 U. S. 418.

> tation, involving, as it does, the element of reasonableness both as regards the company and as regards the public is eminently a question for judicial investigation, requiring due process of law for its determination. If the company is deprived of the power of charging reasonable rates for the use of its property, and such deprivation takes place in the absence of an investigation by judicial machinery, it is deprived of the lawful use of its property, and thus in substance and effect, of the property itself without due process of law and in violation of the constitution of the United States."

This case, which was decided by a six to three vote, did not involve rates made directly by a legislature, but those made by a commission. It was thought at the time, however, and subsequent development proved the correctness of the contention, that *Munn vs. Illinois* had been reversed. Mr. Justice Bradley, in a dissenting opinion, said:

> "The majority say, in effect if not in words, that the final tribunal of arbitrament (in rate matters) is the judiciary. I say it is the legislature. I hold that it is a legislative question, not a judicial one.... It may be that our legislatures are invested with too much power, open as they are to influences so dangerous to individuals, corporations, and societies. But such is the constitution of our republican form of government and we are bound to abide by it until it can be corrected in a legitimate way".

In the short space of thirteen years, the court, in the interpretation of constitutional property guarantees, which in the case amounts to judicial legislation, had put important limitations about the legislative exercise of the police power. No longer must appeal lie to the polls for redress against unreasonable use of the regulatory power. This case marks the turning point in the regulation of rates in this country. By 1898 all dissent to the doctrine of judicial review had disappeared.[3]

The fundamental idea in the doctrine is, obviously, a prohibition, imposed on the states by the fourteenth amendment to the Federal constitution, against taking property, through rate regulation, without due process of law, or just compensation. Attention may be called to the fact that the fifth amendment to the constitution imposes the same prohibition upon the Federal government.

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[3] A full account of the doctrine may be found in Smalley's *Railroad Rate Control* in *Publications of the American Economic Association,* Vol. 7, 3rd series, page 422.

More specifically, the doctrine of judicial review means judicial power to define the content of property. Property rights are defined in the constitution, and the court, as interpreter of the constitution, must ultimately give meaning to the constitutional pronouncements concerning property. Since valuation is essentially a defining of property rights the courts ultimately control valuations. It matters not how much the result may be affected by what commissions may think, the legal theory of fair value is necessarily controlling in matters of rate regulation. Thus it becomes of vital importance to study the court's position.

The Police Power and Property

We may digress for a moment to point out the nature of the police power and its relation to institutional definition.

In the first place, the police power cares for public welfare. It "aims to secure and promote public welfare."[4] This assumes a social point of view. "The care of public welfare, or internal public policy, has for its object the improvement of social and economic conditions affecting the community at large and collectively, with a view to bringing about the greatest good to the greatest number."[5] It is clear then that public policy "assumes the superiority of social over individual welfare."[6]

In the second place, the police power both restrains and compels. It may act, therefore, negatively and positively; destructively and constructively. It may, in other words, restrain discrimination and compel just rates.

In the third place, the police power is a dynamic force. The police power is the "expression of social, economic and political conditions. As long as these conditions continue to change the police power must continue to be elastic, i.e., capable of development.''[7]

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[4] Freund, E., *The Police Power*, p. 3.

[5] *Ibid.*, p. 5.

[6] *Ibid.* p. 11.

Broadly, the police power is the power to determine public policy in the light of changing social, economic and political conditions. It is, therefore, a power of tremendous importance.

There are two general phases of this power, namely, public policy in relation to liberty, and public policy in relation to property. ''The maxim of the power is that every individual must submit to such restraint on the exercise of his liberty and of his property as may be required to remove or reduce the abuse of these rights.''[8] In rate questions we deal only with the latter of these two phases: that of public policy in relation to property.

In *Munn vs. Illinois* the Supreme Court laid down the following fundamental doctrine:

> "This brings us to inquire as to the principle upon which this power of regulation rests, in order that we may determine what is within and what without its operative effect. Looking then at the common law, from whence comes the right which the constitution protects, we find that when private property is 'affected with a public interest' it ceases to be juris privati only. This was said by Lord Chief Justice Hale more than two hundred years ago in his treatise De Portibus Maris, and has been accepted without objection as an essential element of the law of property ever since. Property does become clothed with a public interest when used in such a manner as to make it of public consequence, and affect the community at large. When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be controlled for the common good to the extent of the interest he has created."[9]

This principle is clearly not static. What constitutes ''of public consequence'' or ''a public interest'' depends, obviously, on the nature of economic, social, and political relations at any particular time. It is essentially a direct announcement of the fact that property must subserve social interest—that the justification of private property rests solely in its social usefulness.[10]

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[7] Freund, E., *op. cit.*, p. 11.
[8] *Ibid.*, p. 11.
[9] *Munn vs. Illinois*. 94 U. S. 113.

The common law doctrine of public interest sprang up in the days of Mercantilism. Under that régime the individual was practically of no importance; the state was supreme. In order to build up a strong state many detailed regulations of individual activities were prevalent. The period of extreme individualism which followed Mercantilism for all practical purposes forgot the doctrine of state superiority, and beneficially so. Individualism in a complex economic régime soon works its own destruction. A new theory of society and of social functions has come into being. The state, in the mercantile sense, is no longer supreme, but social purposes are supreme, and the need for a legal doctrine of social superiority became, during the latter part of the nineteenth century, an absolute necessity. It might have been developed anew, but it was simpler to reach back into the past and pull out of it an old doctrine which could easily be adjusted to new conditions.

Regulation, of course, consists in abstracting certain rights from the private sphere. The residue of rights remains purely private. In other words, private property in certain elements persists and in certain others ceases. It may become proper to increase the sphere of private rights. The process is one of adjustment in order to secure highest economic welfare. In fact in the new development of the doctrine many activities are not regulated that under the older application of it were regulated. The price of bread is no longer ordinarily fixed, although it may be in times of war.

The Content of Property

We have now to inquire into the judicially determined extent of private property public for purposes of rate regulation. We find an answer for the first time in *Reagan v. Farmers' Loan and Trust Co.*, 1894.[11] Mr. Justice Brewer, for the court, said:

"The equal protection of the laws—the spirit of common justice—

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[10] Ely, R. T., *Property and Contract.* Prof. Ely discusses these points quite fully, especially in Part I, Chapter VII, The Police Power.

[11] *Reagan v. Farmers' Loan and Trust Co.*, 154 U. S. 362.

> forbids that one class should be by law compelled to suffer that others may make gain. If the states were to seek to acquire title to the roads, under the power of eminent domain, is there any doubt that the constitutional provisions would require the payment to the corporation of just compensation, that compensation being the value of the property as it stood in the markets of the world, and not as prescribed by an act of the legislature? Is it any less a departure from the obligations of justice to seek to take not the title but the use for the public benefit at less than its market value?"

This case is often cited as showing that the court, in the first instance, adopted market value as the basis of rates.[12] The truth is that the International and Great Northern, the road involved in the case, has never paid its way. It is one of those unfortunately placed roads where traffic is too light. It is, of course, a misnomer to speak of market value as a basis of rates even in a case of this sort, but to generalize from a specific case of this kind is about as faulty logic as one can conceive. The point of monopoly surplus was not raised in the trial. Moreover, if we look further into the case, we find that the court takes a very different position. Its real position seems to be indicated in the following quotation:

> "Is there anything that detracts from the force of the general allegation that these rates are unjust and unreasonable? This clearly appears. The cost of this railroad property was $40,000,000; it cannot be replaced today for less than $25,000,000. There are $15,000,000 of mortgage bonds outstanding against it, and nearly $10,000,000 of stock. These bonds and stocks represent money invested in the construction of the road. The owners of the stock have never received a dollar's worth of dividends in return for their investment . . . the earnings for the last three years prior to the establishment of these rates were insufficient to pay the operating expenses and the interest on the bonds. In order to make good the deficiency in the interest, the stockholders have put their hands in their pockets and advanced over a million of dollars. The officers and employees have been paid no more than is necessary to secure men of the skill and knowledge requisite to the suitable operation of the road . . . Can it be that a tariff which under these circumstances has worked such results (caused further losses) to the parties whose money built the road is other than unjust and unreasonable? Would any investment ever be made of pri-

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[12] Whitten, *Valuation of Public Service Corporations*, p. 58.

> vate capital in a railroad enterprise with such as the proffered results? There may be circumstances which would justify such a tariff; there may have been waste in the management of the road; enormous salaries, unjust discrimination as between shippers, resulting in a general loss. The construction may have been made at a time when material and labor were at the highest prices, so that the actual cost far exceeds the present value; the road may have been unwisely built in localities where there is not sufficient traffic to sustain a road."[13]

This is evidently a present value, and not a market value, theory. Although not clearly formulated, the essential idea underlying the whole position is a comparative market value or alternative use theory. It is an indistinct announcement of an opportunity cost doctrine. In any event it is not a pure market value theory.

The court did not fall into the circle of market value. To make market value the basis of rates is to deny the validity of rate regulation, for since rates determine income and income determines market value, there would be no measure of market value except the opportunistic principle or practice of what the traffic will bear, or, less euphoniously, monopoly charge. It would then be a foolish waste of time to attempt to find market value in order to fix rates when the rates would have to be left as they were in order to maintain the market value. Even service regulation would be denied, for to increase service requirements would increase expenses and lower net revenues and thus lower market value. This would be confiscation on the assumption that market value controlled.

Precisely the same position is taken in *Smythe v. Ames,* 1898, and the formulation is clearer.

> "A corporation maintaining a public highway, although it owns the property it employs for accomplishing public objects, must be held to have accepted its rights, privileges and franchises subject to the condition that the government creating it, or the government within whose limits it conducts its business, may by legislation protect the people from unreasonable charges for services rendered by it. It cannot be assumed that any railroad corporation accepting franchises, rights, and privileges at the hands of the public, ever supposed that it ac-

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[13] *Reagan v. Farmers' Loan and Trust Co.,* 154 U. S. 362, 410.

> quired, or that it was intended to grant to it, the power to construct and maintain a public highway simply for its benefit, without regard to the rights of the public. But it is equally true that the corporation performing such public service and the people interested in its business and affairs have rights that may not be invaded by legislative enactment in disregard of the fundamental guarantees for the protection of property. The corporation may not be required to use its property for the benefit of the public without receiving just compensation for the services rendered by it. . . . We hold that the basis of all calculations as to reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stocks, the present as compared with the original cost of construction, the probable earning capacity under the particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters to be considered, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience. On the other hand, what the public is entitled to demand is that no more be exacted from it for the use of the public highway than the services rendered by it are reasonably worth."[14]

This is dicta as it was unnecessary to decide the point in this case. The rates were held unreasonable from any point of view, but it will be noted that precisely the same points that are actually considered in the Reagan case are mentioned here as controlling elements in fair value. The position of the court is clear. Private property, from the point of rate making, includes only a fair return on the fair value of that used for the public convenience. Private property is thus a right to income, but to no more than a fair income. All income above that which is fair may be taken through rate regulation without violating the prohibition of the fourteenth amendment. As no compensation must be made for taking income above the level of reasonableness, as there is no private claim to such income, private property is limited to a just level. To illustrate: Suppose a corporation expends $100,000 in a plant which is able, by virtue of monopoly position, to earn $15,000 a year. The commercial value of the plant, assuming 8 per cent to be the current investment rate, would be in a neighborhood of $187,500. How much of this is private property? If the court, applying its tests of reasonableness, should decide that $125,000 was the fair value of the plant and 8 per cent a fair rate of return, the difference between $187,500 and $125,000 could be taken without compensation. It is, therefore, not private property. Any taking below this point would be in violation of private property rights and therefore unconstitutional, unless perchance some provision were made for just compensation.

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[14] *Smythe v. Ames,* 169 U. S. 466, 545.

From the point of view of rate regulation, then, private property may be defined as the legal right to a reasonable return on the reasonable value of that which is used for the public convenience. Whether or not this interpretation of the content of property is in accord with economic principles and public policy depends entirely on the meaning given to reasonableness. Consequently, we pass to a discussion of the judicial interpretation of reasonableness.

THE WHOLESOMENESS OF THE DOCTRINE OF JUDICIAL REVIEW

Before passing to the interpretation of reasonableness by the courts we wish to say a word as to the wholesomeness of the doctrine of judicial review. One may agree with those jurists who believe that the doctrine of judicial review is a usurpation of power on the part of the courts,[15] or with those persons who think that the result of the doctrine is privilege made property,[16] or with those who decry the fact that public businesses are in part relieved from the ordinary hazards of business,[17] and therefore condemn the doctrine, and one may not. The last reason is no reason at all; in fact, one is inclined to come to the opposite conclusion. To relieve public businesses of hazards ordinary or extraordinary is highly desirable as a means of approximating investment conditions. Of the jurists who believe in the usurpation idea, few for this reason condemn the doctrine. Those who believe that privilege is made property are clearly looking at a possible use of the power. The truth seems to be about as follows: Public opinion ultimately controls in this country.[18] But public opinion controls the courts from afar off. It is, therefore, a mature public opinion. The fickleness of public opinion is proverbial, and unripened sorts working through unstable legislatures can, and often do, do more industrial harm in a legislative day than can be remedied in a generation.[19] In the present status of political conditions in the country, one must give assent to the wholesomeness of the judicial power of defining the content of property. As a permanent policy we do not discuss it. Probably a commission removed from political influence would be ideal, but this body would be judicial, and we cannot get away from the control of public opinion, even if we would, so we end where we started. It may be that the courts move a little slowly, but better that than the wild speed of legislatures.

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[15] See dissenting opinion of Mr. Justice Bradley in the *Minnesota Rate* case. *Supra*, p. 90.

[16] Orton J., *Confusion of Property with Privilege* in *Independent*, 67: 392, 448.

[17] Smalley, *Railroad Rate Control* in *Publications of the American Economic Association*. 3rd series, Vol. 7, p. 422.

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[18] Bryce, J., *The American Commonwealth,* Vol. 2, pp. 261–299.

[19] The Potter law of Wisconsin is a good example.

CHAPTER VI

THE LEGAL THEORY OF FAIR VALUE: THE INTERPRETATION OF REASONABLENESS

General Trend of Decisions

An unbroken line of decisions, following the *Reagan* case and *Smythe v. Ames,* has continued the doctrine that present value is the equivalent of fair value. In *San Diego v. National City,* 1899, on appeal, Mr. Justice Harlan refers to "the reasonable value of the property at the time it is being used by the public."[1] In *San Diego v. Jasper,* 1903, Mr. Justice Holmes maintains that present value as a basis of rates is settled law; "this is decided, and is decided against the contention that you are to take actual cost." [2] In the *Consolidated Gas* case, 1909, Mr. Justice Peckham says: "And we concur with the court below in holding that the value of the property is to be determined as of the time when the inquiry is made regarding rates....This, at any rate, is the general rule.[3] Finally, in the *Minnesota Rate* case, 1913 the court said:

> "The basis of calculation is the fair value of the property used for the convenience of the public. *Smythe v. Ames,* or as it was put in *San Diego v. National City:* 'What the company is entitled to demand, in order that it may have just compensation, is a fair return upon the reasonable value of the property at the time it is being used for the public. The ascertainment of that value is not controlled by artificial rules. It is not a matter of formulas, but there must be a reasonable judgment having its basis in a proper consideration of all relevant facts.' The scope of the inquiry was thus broadly described in *Smythe v. Ames:* 'In order to ascertain that value the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as com-

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[1] 174 U. S. 739.

[2] 189 *U. S.* 439.

[3] 212 U. S. 19.

> pared with the original cost of construction, the probable earning capacity under the particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property.' The property is held in private ownership, and it is that property, and not the original cost of it, of which the owner may not be deprived without due process of law."[4]

It is significant to note in *Smythe v. Ames*, "It (a railway) may not impose upon the public the burden of such increased rates as may be required for the purpose of realizing profits upon excessive valuation or fictitious capitalization;" in *San Diego v. National City*, "The property may have cost more than it ought to have cost;" in *San Diego v. Jasper*, "The only evidence in favor of a higher valuation is the original cost of the work seemingly inflated by improper charges to that account and by injudicious expenditures;" in *Stanislaus v. San Joaquin*,[5] "the original cost may have been too great, mistakes of construction, even though honest, may have been made....more property may have been acquired than was necessary or needful for the purpose intended," and finally, in the *Minnesota Rate* case, "it is clear that in ascertaining the present value we are not limited to the consideration of the amount of the actual investment. If that has been reckless or improvident, losses may be sustained which the community does not underwrite. As the company may not be protected in its actual investment if the value of its property be plainly less, so the making of a just return for the use of the property involves the recognition of its fair value if it be more than cost......And where the inquiry is as to the fair value of the property ......it is not admissible to attribute to the property owned by the carriers a speculative increment in value.... beyond the value of similar property owned by others....That would be to disregard the essential conditions of public use, and to make the public use destructive of public right."[6]

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[4] 230 U. S. 352, 434.

[5] 192 U. S. 201.

[6] 230 U. S. 352.

There can be no mistaking the intention of the court to identify present value and fair value. Actual cost or investment, if below or above present value, is specifically ruled out.

This only starts the inquiry, however, for present value may mean any one of several things. Present value may mean, from the cost point of view, (1) the cost of reproducing substantially the existing plant using present prices of labor and materials, (2) the cost of reproducing an equally efficient substitute plant or utilizing new opportunities at present prices, and (3) the cost, at present prices, of reproducing the existing plant under the actual conditions of construction. In every case, the cost of establishing the business may or may not be included. From the value point of view, present value may mean commercial value, *i. e.,* net earnings, as affected by future prospects, capitalized at an assumed rate of capitalization.

As already stated, commercial value is obviously unsound as a basis of rates. The court has never used it. The Reagan case and the mention of market value of stocks and bonds in the case of *Smythe v. Ames,* which clearly relates to the conditions in the *Reagan* case, do not justify the opposite conclusion. Every one recognizes that commercial value depends on rates and that it would be absurd to base rates on such value. One who holds otherwise is in a fair way to solve the problem of perpetual motion, or to raise himself by his own boot straps, the proof of the validity of the proceeding resting in showing the boots.[7]

THE PRINCIPLES UNDERLYING PRESENT VALUE INTERPRETED AS COST OF REPRODUCTION LESS DEPRECIATION

It is ordinarily said that the legal theory of fair value may be summed up in the expression cost-of-reproduction-less-depreciation. This conclusion is, it seems, not entirely true, but it will serve to clear the way for the exposition of the legal theory if the fundamental principles of this position are made clear. From the

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[7] The Washington Railroad Commission has a peculiar notion of a sort of competitive-monopolistic-market value. *Annual Report,* 1907–8, pp. 127–318. See *Census Bulletin* No. 21 for methods of computing commercial value.

Consolidated Gas case, 1909, comes the best statement of this theory. District Judge Hough says:

> "As to realty, the values assigned are those of the time of inquiry; not the cost when the land was acquired for the purpose of manufacture, and not the cost to the complainant of so much as it acquired when organized in 1884, as a consolidation of several other gas manufacturing corporations.
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> "It is objected that such method of appraisement seeks to confer upon the complainant the legal right of earning a fair return upon land values which represent no original investment by it, does not indicate land especially appropriate for the manufacture of gas, and increases the apparent assets without increasing earning power. Analogous questions arise as to plant, mains, services, and meters; the reported values whereof are the reproductive cost less depreciation, and not the original cost to the complainant or its predecessors.
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> "It appears by undisputed evidence that some of these last items of property cost more than new articles of the same kind would have cost at the time of the inquiry; that some of the designs are not now favored by the scientific and manufacturing world, so that no one now entering upon a similar business would consider it wise to erect such machines or to obtain such apparatus. In every instance, however, the value assigned in the report is what it would cost presently to reproduce each item of property, in its present condition, and capable of giving service neither better nor worse than it now does. As to all the items enumerated, therefore, from real estate to meters, inclusive, the complainant demands a fair return upon the reproductive value thereof, which is the same thing as present value properly considered. To vary the statement: Conplainants arrangements for manufacturing and distributing gas are reported to be worth the amounts above tabulated if disposed of (in commercial parlance) 'as they are.'
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> "Upon authority, I consider this method of valuation correct. What the court should ascertain is the fair value of the property being used. . . . It is impossible to observe the continual use of the present tense in these decisions of the highest court without feeling that the actual or reproductive value at the time of the inquiry is the first and most important figure to be ascertained. . . . Upon reason, it seems clear that in solving this equation plus and minus quantities should be equally considered, and appreciation and depreciation treated alike. . . . The complainant by itself and some of its constituent companies has been continuously engaged in the gas business since 1823. A part of the land in question has been employed in that business for more than two generations, during which time the value of land on Manhattan Island has increased even more rapidly than its population. So likewise the construction expense not only of build-

ings but of pipe systems under streets now consisting of continuous sheets of asphalt over granite, has enormously advanced.

"The value of the investment of any manufacturing plant, factory, or goods, or all three, is what his possessions will sell for upon a fair transfer from a willing vendor to a willing buyer, and it can make no difference that such value is affected by the efforts of himself or others, by whim or fashion, or (what is really the same thing) by the advance of land values in the opinion of the buying public. It is equally immaterial that such value is affected by difficulties of reproduction. If it be true that a pipe line under the New York of 1907 is worth more than a pipe line under the city of 1827, then the owner thereof owns that value, and that such advance arose wholly or partly from difficulties of duplication created by the city itself is a matter of no moment. Indeed, the causes of either appreciation or depreciation are alike unimportant, if the fact of value be conceded or proved; but that ultimate inquiry is often times so difficult that original costs and reasons for changes in values become legitimate subjects for investigation, as checks upon expert estimates or bookkeeping, inaccurate and perhaps intentionally misleading . . . If fifty years ago, by the payment of certain money, one acquired a factory and the land appurtenant thereto, and continues today his original business therein, his investment is the factory and the land, not the money originally paid, and unless his business shows a return equivalent to what land and building, or land alone, would give if devoted to other purposes (having due regard to cost of change) that man is engaged in a losing venture, and is not receiving a fair return from his investment, i. e., the land and building. The so-called 'money value' of real or personal property is but a conveniently short method of expressing present potential usefulness, and investment becomes meaningless if construed to mean what the thing invested in cost generations ago. Property, whether real or personal, is only valuable when useful. Its usefulness depends on the business purposes to which it is or may be applied. Such business is a living thing, and may flourish or wither, appreciate or depreciate; but, whatever happens, its present usefulness, expressed in financial terms, must be its value.

"As applied to a private merchant or manufacturer, the foregoing would seem elementary; but some difference is alleged to exist where the manufacturer transacts his business only by government license—whether called by a franchise or by another name. Such license, however, cannot change an economic law, unless a different rule be prescribed by the terms of the license, which is sometimes done. No such unusual condition exists here, and, in the absence thereof, it is not to be inferred that any American government intended, when granting a franchise, not only to regulate the business transacted thereunder, and reasonably to limit the profits thereof, but to prevent

> the valuation of purely private property in the ordinary economic manner, and the property now under consideration is as much the private property of this complainant as are the belongings of any private citizen. Nor can it be inferred that such government intended to deny the application of economic laws to increments earned or unearned, while insisting upon the usual results thereof in the case of equally unearned, and possibly unmerited, depreciation."[8]

This clear statement of the cost-of-reproduction-less-depreciation theory of fair value is made clearer by a quotation concerning the rate of return. In the same case, District Judge Hough says:

> "Such business is secured against competition, because the monopoly is beneficial. To have the streets of the borough of Manhattan torn up to afford room (if room exists) for the mains of a rival is unthinkable. For the same reason, and because the population and its wants will increase, so far as human foresight can perceive, the amount of business will increase. So that the inquiry here is: What is a fair and reasonable charge or rate of return upon the most favorably situated gas business in America, not forgetting that all gas businesses are inherently subject to many of the vicissitudes of manufacturing?
>
> "Much testimony has been introduced to show that certain investors in gas works well known throughout the country expect to obtain from 8 per cent to 15 per cent upon the price of what they can buy. It must be admitted that investors are entitled to reap large reward, if they can, from the hazards of a new business, or the rebuilding of a broken one. Such ventures are for exploitation, and the day for exploiting the business of selling illuminating and fuel gas in New York City is past—or certainly ought to be. The exploitation value in this case is represented by the enhancement over cost of land, mains, and services, arising from local conditions beneficial alike to this complainant and many other New Yorkers, who by judgment or luck purchased or constructed, perhaps generations ago, what many men desire. An interest in the gas business of this city is as nearly a conservative investment as any private manufacturing enterprise can furnish, and, although each case depends upon its special facts, there is, after problem conditions are ascertained, one question that can always be asked: What would that prudent man acquainted with business (so familiar to the readers of legal literature) do regarding such investment if it were offered him? I think he would take it, not with enthusiasm, but as fairly safe local property, promising a rate of return sufficiently above the local mortgage rate to compensate for the

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[8] 157 U. S. Fed. 849, 870.

> additional and non-insurable risk. He would expect and have just and reasonable right to expect a return of 6 per cent, not because that happens to be the interest rate established by law in the state of New York, but because it is the return ordinarily sought and obtained on investments of that degree of safety in the city of New York."

Fundamentally, this theory is based on the doctrine of opportunity cost interpreted from a private point of view. The two questions asked are (1) what would it presently cost a producer to get into the particular business being valued, and (2) with certain risk adjustments, what return would the producer forego in other fields in making an investment, in the present, in the regulated field? It is clearly a doctrine of present opportunity cost.

Carried to its logical conclusion, this theory would use cost of substitute plant instead of cost of present plant, and would allow intangible items as determined by the comparative method. But the theory is not carried so far. Nevertheless, the theory of the court is clear. If one has $100,000 to invest and could get 6 per cent in other investments of similar risk he must be allowed 6 per cent in regulated business. If one wanted to get into a particular business he would have to pay for the necessary property its value in other uses. If perchance, A should put $100,000 into a business, and tomorrow it would cost B $200,000 to get into the same business then A gets the benefit of the increased cost of production, and gets a price which gives him a return on $200,000 whereas he put in only $100,000. This is the position of the court. It assumes a competitive condition and under any other conditions is entirely invalid. Even from a private point of view one cannot justify the application of the doctrine to pavements over mains. This sort of value is altogether hypothetical.

From a social point of view, the theory breaks down in four important respects: (1) it fails to take into account actual outlays for non-physical items, (2) it fails to understand the nature of rent and land value, and permits a double return in that it allows appreciation plus return on appreciation, (3) it capitalizes monopoly position in certain cases, as in the case of pavement over mains, (4) it confuses the appreciation and depreciation problems, applying the doctrine of offsets, which may practically work out in some cases, but which is theoretically unsound. It deducts depreciation which, unless a fund has been legally required, is not just. The primary error, of course, lies in the failure to distinguish between freely reproducible goods and non-freely reproducible goods, and in carrying a theory which may be sound enough if applied only to freely reproducible goods over into the field of non-freely reproducible goods.

As applied to capital goods, the results correspond, if violently fluctuating prices are eliminated through the use of averages, to the original cost as affected by an index of price changes. As applied to goods which are not freely reproducible, the result is to destroy equal opportunity, for it capitalizes increases in value not commonly appearing in competitive businesses. Thus the fundamental principle in the economical doctrine of fair value is directly opposed in the cost-of-reproduction-less-depreciation theory.

Principles Underlying the Legal Theory of Fair Value

The general language of the Supreme Court would seem to indicate adherence to the doctrine laid down by District Judge Hough in the *Consolidated Gas* case. Moreover, in this case, on appeal, Mr. Justice Peckham, for the court, said:

"And we concur with the court below in holding that the value of the property is to be determined as of the time when the inquiry is made regarding rates. If the property which legally enters into the consideration of the question of rates has increased in value since it was acquired, the company is entitled to the benefit of such increase. This, at any rate, is the general rule."[9]

And although the decision of the inferior court was upheld, this general concurrence by the Supreme Court does not mean that it sustained the inferior court in all particulars. In fact, in very important points there is a wide divergence in the positions of the two courts—a divergence so wide as to amount to a difference in fundamental theory.

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[9] 212 U. S. 19, 52.

The differences of which we speak lie in the items legally entering into rates. In the matter of rate return the Supreme Court fully sustains the lower court. Mr. Justice Peckham says:

> "There is no particular rate of compensation which must in all cases and in all parts of the country be regarded as sufficient for capital invested in business enterprises. Such compensation must depend greatly upon the circumstances and the locality; among other things, the amount of risk in the business is a most important factor, as well as the locality where the business is conducted and the rate expected and usually realized there on investments of a similar nature with regard to the risk attending them. There may be other matters which in some cases might also be properly taken into account in determining the rate which an investor might properly expect or hope to receive and which he would be entitled to without legislative interference. The less risk, the less right to any unusual returns upon the investments. One who invests his money in a business of somewhat hazardous character is very properly held to have the right to a larger return without legislative interference than can be obtained from an investment in government bonds or other perfectly safe security. The man that invested in gas stock in 1823 had a right to look for and obtain if possible, a much greater return upon his investment than he who invested in such property in the city of New York after the risk and danger involved has been almost eliminated . . . An interest in . . . (this) . . . business is as near safe and secure investment as can be imagined with regard to any private manufacturing business, although it is recognized at the same time that there is a possible element of risk, even in such a business. . . . Under these circumstances, the court held that a rate which would permit a return of 6 per cent would be enough to avoid the charge of confiscation, and for the reason that a return of such an amount was the return ordinarily sought and obtained on investments of that degree of safety in New York.
>
> "Taking all the facts into consideration, we concur with the court below on this question, and think complainant is entitled to six per cent on the fair value of its property devoted to the public use."[10]

So much for the rate of return; we now take up the differences in the two positions. These lie chiefly in the disposition of intangibles and such hypothetical or artificial values as condemnation multiples and increased value due to pavement over mains.

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[10] 212 U. S. 19, 48.

These latter items are not included in value. In the recent *Minnesota* case, in discussing land value, the highest court said:

> "And where the inquiry is as to the fair value of the property . . . it is not admissible to attribute to the property owned by the carriers a speculative increment in value—beyond the value of similar property owned by others.
>
> "The company would certainly have no ground for complaint if it were allowed a value for these lands equal to the fair average market value of similar lands in the vicinity, without additions by the use of multipliers, or otherwise, to cover hypothetical outlays. The allowance made below for conjectural cost of acquisition and consequential damages must be disapproved; and in this view we also think it was error to add to the amount taken as the present value of the lands, the further sums, calculated on that value, which were embraced in the items of 'engineering, superintendence, legal expense,' 'contingencies,' and 'interest during construction.' "[11]

Thus are condemnation multiples definitely excluded. At least this is true when appreciation covers up these expenses. If it could be shown that the condemnation outlay was real and that appreciation had not covered it, it is probable that the court would allow it, but this point is not decided. In the ordinary case this point would not arise as appreciation has been large enough to cover. Land value is, then, determined by the market value of adjacent lands: a comparative market value doctrine, or an opportunity cost doctrine. The difference between this position and the full application of the cost of reproduction doctrine is obvious.

Although the question of pavement over mains has not been definitely decided by the Supreme Court there is little doubt as to what will be its ultimate decision. In the *Consolidated Gas* case, the lower court, following the cost of reproduction theory to its logical end, allowed this element in valuation. The Supreme Court approved the findings of the lower court without discussing this point. In the *Cedar Rapids Gas* case,

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[11] 228 U. S. 729, 763.

1909, the Supreme Court of Iowa definitely ruled against any value due to pavements over mains.[12] The Supreme Court of the United States upheld that decision without discussing the point,[13] and the question is thus not settled. But the artificiality of the item is similar to the artificiality of condemnation multiples. The latter item has been ruled out; the former is of the same nature and will probably meet the same fate.[14]

If these conclusions are true, they indicate that present value refers sometimes to cost under actual conditions of construction and sometimes to cost under conditions of reproduction. This means, interpreted in terms of economic theory, that the court has, in some degree, reached the sound position of distinguishing between freely reproducible goods and goods not freely reproducible, and in the case of the latter is passing, in part at least, over to a position which corresponds to original cost as affected by an index of price changes. This distinction may be made unconsciously, but the manifest unjustness of treating these sorts of items as capital goods of the ordinary kind are treated is clear to the court, and with much care it is feeling its way to another position. In other words the court is passing over to a social point of view.

In the matter of intangibles, the *Cedar Rapids Gas* case, 1912, seems to indicate that intangibles are cared for if reproduction value, not salvage value, is taken as the basis of rates. Mr. Justice Holmes says:

> "Then again, although it is argued that the court excluded going value, the court expressly took into account the fact that the plant was in successful operation. What it excluded was the good will or advantage incident to the possession of a monopoly, so far as that might be supposed to give the plaintiff the power to charge more than a reasonable price. (*Willcox v. Consolidated Gas,* 212 *U. S.* 19, 52.) An adjustment of this sort under a power to regulate rates has to steer between Scylla and Charybdis. On the one side if the franchise is taken to mean that the most profitable return that could be

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[13] 144 Iowa 426.

[13] 223 U. S. 655.

[14] In *Des Moines Gas Co. vs. Des Moines,* 35 S. C. R. 811, the Supreme Court (June 1915) expressly ruled out pavement over mains as an expense item. This decision was made after this chapter was written.

> got, free from competition, is protected by the fourteenth amendment, then the power to regulate is null. On the other hand if the power to regulate withdraws the protection of the amendment altogether, then the property is nought. This is not a matter of economic theory, but of fair interpretation of a bargain. Neither extremes can have been meant."[15]

Thus does the court disclaim any sympathy with the going concern theory of intangibles. The circular "cost of creating an income" theory is clearly cast aside. The independent amount, urged by the average defendant of the reproduction method, is not approved. On the other hand, the going value theory is also not endorsed. The actual historical outlays for non-physical items are not considered.

This position is a perfectly logical outcome of the comparative market value theory held by the court. Salvage value is not the basis of rates, but a value determined by the ordinary competitively determined value of output. Machines that cost $1,000 would ordinarily under the comparative market value theory have a value of $1,000, although after a few months' use, they would probably not sell for more than a few hundred dollars. It is the comparative cost value that controls. And taking this cost value, in the estimate of the court, allows for value as a going concern. It is clear that after the machine had been used for half its life, under the comparative market value theory, it would have depreciated 50 per cent. That is, it would be capable of turning out only half as much service as when new: not half as much at the particular time, for it might be in a state of high efficiency, but half as much from the life-time point of view. Half its life is gone: it can, therefore, turn out only half as much as a new one, and is therefore only half as valuable.

The intention of the court is clear. The two fundamental doctrines are equal opportunity and opportunity cost. The first means that producers in monopoly fields should have monopoly advantage removed; this places all producers in the same relative position. Monopoly advantage removed, the doctrine of opportunity cost means that a producer in regulated fields should be allowed a return equal to what he could get elsewhere on what it would cost him to get into the business. What it would cost him to get into the business is interpreted as present cost sometimes of present plant, and sometimes of actual construction—a historical position.

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[15] 223 U. S. 655, 669.

Of course, the court must accept existing classifications and can have a theory of equal opportunity only as between individuals in a class. The economic theory, which legislatures and commissions can follow effectively, develops a theory of equality as between classes, or rather transcends classes and develops a general theory of equality as between individuals—not of equality of persons, but of equal opportunity to produce.

The comparative market value theory applies, then, only within classes. In this case the class is the producing class, exclusive of labor. Under competitive conditions, the value of goods is determined by the returns which accrue. These returns accrue under conditions of equal opportunity and are, therefore, fair, for there is no coercion, as exists in the case of monopoly. If the same values be attached to goods employed in monopoly business the same returns will accrue to such producers as accrue to other producers and equal treatment is afforded to all in the class. It will be a matter of indifference, theoretically, whether one invests in monopoly or in competitive business.

The legal theory has for its object the attainment of equal opportunity. It approximates the investment theory in applying present prices to freely reproducible goods, and in applying present prices to original construction conditions in the case of some non-freely-reproducible goods. But certain other non-freely-reproducible goods are not so treated, for example, land. The comparative market value theory also fails to handle properly the depreciation problem and the matter of intangibles. These matters we now take up.

Comparative Market Value and Depreciation

Comparative market value as a basis of rates connotes the subtraction of depreciation in all cases. The court faithfully follows its theory. In the *City of Knoxville vs. Knoxville Water Co.,* 1909, the Supreme Court reversed a decision of the lower court enjoining the enforcement of an ordinance of the city of Knoxville establishing maximum rates for water. The Master below had used cost new as the basis of value. Mr. Justice Moody said: "The cost of reproduction is one way of ascertaining the present value of a plant like that of a water company, but that test would lead to obviously incorrect results if the cost of reproduction is not diminished by the depreciation which has come from age and use."[16] Deducting depreciation, value was high enough to permit the accrual of a fair return under the prescribed rates. The same doctrine is sustained in the *Consolidated Gas* case (212 U. S. 19) and in the *Minnesota Rate* case, (228 U. S. 729).

We have already pointed out[17] that in the case of newly regulated companies there is no prima facie evidence that depreciation ought to be deducted. In fact, the weight of evidence is in the other direction. In the case of old regulated companies it is purely a matter of expediency whether or not depreciation funds ought to be required and, therefore, cost new less depreciation become the basis of rates. In any event, the comparative market value theory rests its case on assumptions which are doubtful and not proved.

COMPARATIVE MARKET VALUE AND INTANGIBLES

Intangibles include, from the investment point of view, actual expenditures in establishing a business which are not embodied in physical items. That there are many costs of this sort in the beginning is clear. That they occur at the times of extensions is also clear. The comparative market value theory does not take account of them directly although in allowing a higher rate of return during the earlier years this expense may in fact be amortized and therefore, from the point of view of the investor, justly handled. But if, perchance, this amortization process has not taken place and a valuation is made, it is present risk and present comparative market value that control and no attention is paid to the historical or investment facts. One cannot go far wrong in concluding that such a method is rather unscientific. From the standpoint of justice, it becomes more or less a guess, and guess work is somewhat unstable as a basis of justice.

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[16] 212 U. S. 1, 9.

[17] *Supra,* p. 60.

COMPARATIVE MARKET VALUE AND LAND

Another serious objection to the comparative market value theory lies in its treatment of land. This problem centers in donated lands and in land appreciation, both of which items are, of course, included. From the investment point of view both are excluded. Attention has already been directed to the importance of the problem and to the reasons for holding to the exclusion idea.[18] If the legal position is such that it is impossible to exclude these items, under ordinary police power regulation, some other means must be found for doing it. To this problem we devote the next chapter.

COMPARATIVE MARKET VALUE AND THE MARGINAL ROAD

We must now inquire into the legal theory of rates in relation to the marginal road. Attention has been called to the problem and to the economic solution of it.[19] Rates are based on the cost of the marginal road; they should be based on the cost of the most efficient supra-marginal road. The result of basing rates on the costs of the marginal road is the grossest sort of local discrimination, or destruction of equal opportunity to produce. The discrimination can be eliminated only by changing the basis of rates. If a straight cost basis were used it would eliminate the differential road from competitive traffic, but local traffic, in virtue of raised rates, would furnish sufficient revenue to pay returns on the comparative market value of the roundabout roads. This would certainly avoid any charge of confiscation, and there could then be no legal objection to the change.

It might be, however, that under this adjustment the local traffic would not pay a sufficient return to the roundabout roads. It might even be that local traffic would decline, due to a movement of industry to locations on the standard road. It is probable that, in this case, the change would not avoid the charge of confiscation, and that it would be necessary to make compensation amounting to the difference between present and comparative market value and the value as determined by the amount the local traffic would pay.[20] As investment was made under existing conditions it would certainly be just to pay this difference: a sort of just vested right. But, during the gradual change of bases, there would accrue a price determined surplus to the supra-marginal roads which might justly be taken and used to amortize the fall in value of the marginal roads. Since the condition of rates based on the marginal road is economically unjustifiable, it ought to be considered a temporary condition. Following the general position taken in regard to capitalization and amortization, *i. e.*, that permanent investments ought to be capitalized, we hold that the "temporary investment" ought to be amortized during the period covered by the change. Since compensation is offered, there can be no legal objection to this position.

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[18] *Supra*, p. 53, *et seq.*

[19] *Supra*, Chapter IV.

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[20] Gilmore, E. A., Professor of Constitutional Law in the University of Wisconsin.

CHAPTER VII

FAIR VALUE AND THE LAND PROBLEM

The Significance of the Problem

Some idea of the importance of the problem of land value in rate making may be had from two cases. In the *Western Advance Rate* case, Commissioner Lane estimated that $150,000,000 out of a total present value of $530,000,000 was increase in land value. This is something like 26 per cent of present value, or 53 per cent of actual investment which was estimated at $258,000,000.[1] In the *Minnesota Rate* case, 1913, the original cost of the Northern Pacific was estimated at $312,000,000. The cost of reproduction, according to the findings of the special master, was $452,000,000.[2] This amount was cut down somewhat by the Supreme Court by the elimination of certain intangibles and overheads. The difference, however, between reproduction cost and original cost, $140,000,000, represented chiefly the unearned increment and donated lands. This amount is approximately 39 per cent of reproduction value and 45 per cent of actual investment. From the social point of view, the railways, in these two cases, were allowed a return on an increment which is unfair.

There is no reason to believe that these increments will not continue to grow with the increase of population in this country. There may be sectional losses due to the movement of population, but the peculiar limitation of land supply will inevitably result in a large appreciation in value as population grows. To permit this appreciation in rates is, as we have pointed out, to establish conditions of unequal opportunity to produce. There is thus presented an important problem for solution.

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[1] 20 I. C. C. Reps. 307, 337.

[2] For this case and many others, see Thelan, Max. *A Just and Scientific Basis for the Establishment of Public Utility Rates with Particular Attention to Land Value* in the *Report* of the Committee on Railroad Taxes and Plans for Ascertaining Fair Valuation of Railroad Property.

Summary of Legal Situation

The problem may be approached from two legal points of view. Recently the doctrine of principal and agent has been advanced as the proper legal point of view, in contrast with the present doctrine of regulation under the police power.

Certain lower courts have gone over to the former position. Judge Van Vleet, of the California Supreme Court, in *San Diego Water Company vs. San Diego,* a rate case, says:

> "As we have said, it is not the water or the distribution works which the company may be said to own, and the value of which is to be ascertained. They were acquired and contributed for the use of the public; the public may be said to be the real owner and the company only the agent of the public to administer their use."[3]

Quotations from the decisions of the Federal Supreme Court have been cited to show that this court holds the same doctrine. For instance, Mr. Justice Harlan, in *Smythe vs. Ames,* says: "A railroad company is a public highway, and none the less so because constructed and maintained through the agency of a corporation deriving its existence and powers from the state. Such a corporation was created for public purposes. It performs a function of the state."[4] This excerpt is supposed to prove that the Supreme Court holds the principal and agent doctrine. Such, however, is not the case. The series of cases, beginning with *Munn vs. Illinois* and running through the *Minnesota Rate* case of 1889, the *Reagan* case, *Smythe vs. Ames,* the *Consolidated Gas* case, and the *Minnesota Rate* case of 1913, considers railway property as private to be regulated under the police power. One need only turn back to chapter six of this monograph and read the quotations from the decisions of the court to be convinced of this fact. The doctrine of comparative market value and risk assumption is entirely inconsistent with the principal and agent notion, for the fundamental rule of agency is that the principal benefits from gains and bears losses if the agent makes reasonable use of judgment.

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[3] 118 Cal. 556, 570.

[4] 169 U. S. 466, 544.

Undoubtedly, if the principal and agent doctrine were adopted the problem of land value would present no difficulties. Appreciation in land value would then accrue to, and depreciation in land value be borne by, the public.

This is probably the simplest solution of the land problem, but it is not the only solution, nor is there as yet any indication that the highest court will ever adopt this view. Its present rulings are quite of another tenor. Certainly, the change will not come until enormous increments have accrued to the railways.

We are forced, then, to seek a solution under police power regulation. The solution here rests in the application of the investment theory of valuation, which would permit the companies to earn a fair return to actual investment and would eliminate the increments. But the court will have to modify its present position greatly before this can be done, and there is little reason to believe that it will. The court's conception of its duty to protect private property rights leads it to the comparative market value theory.

A constitutional amendment would solve the difficulty, but constitutional amendments are notoriously slow in coming. If the court persists in holding the comparative market value theory, the solution must come from that point of view.

Public Ownership of Public Utility Lands

From the point of view of comparative market value, the only solution seems to be the public ownership of public utility lands. In the case of street railways most of the land used is public highway. The appreciation of adjoining lands has never been used as an argument for advancing rates. In fact, the appreciation of adjacent lands, since it results from increasing population and since street railway businesses are usually subject to the law of increasing returns, is ordinarily co-existent with a possibility of lowering rates. In the case of interurbans and steam roads land is privately owned, and appreciation in land value is, therefore, usually a ground for raising rates. The increase in population, and the consequent rise of land value, it seems then, affect the rate question in widely different ways.

In view of the legal situation, the logical way out of this difficulty is to extend the principle of the public highway to all lands actually used by a public service corporation in rendering public service.

The elimination of appreciation, donated lands and the speculative element in land value from rates are obvious advantages. The two chief arguments against public ownership are: first, that it would have a deleterious effect on private initiative, and second, that it would result in a powerful political machine. These two arguments do not apply here.

First as to the effect on private initiative. It is not now appreciably discoverable that private initiative is inactive in those public utilities which make large use of public highways. Nevertheless, it will be thought by some that this would not be true in the case of railways. This is a matter chiefly of business custom, but custom is powerful and we hesitate to make changes in face of it. It is customary for steam roads to own their rights of way and terminals, and we come to believe this an essential part of the business. It is not customary for street railways to own their rights of way, and we come to believe this an exception and that private ownership is not essential to them. But the various kinds of public utilities are not vitally different in the nature of their dependence on land. Promoters and investors are quite eager to secure franchises to operate over city streets, even in the face of regulation which does not allow more than a fair return on the capital invested. We see no good reason why steam roads should not operate under the same conditions. Just why a street car company is willing to operate in a city without owning its right of way, and why the same company would not operate between two cities unless it did own its right of way, is not clear. Nor is it clear why steam roads, operating in and between cities, would wither and die if they ceased to own their rights of way. There may be a corporate psychology, but, if so, it is likely that its origin and nourishment are found in custom.

There is another phase of the private initiative question. It must be evident that the sure result of including land appreciation in valuations is a growing agitation for complete ownership and operation by the state of all the big utilities of the country. Commissioner Lane, in speaking of this point in the *Western Advance Rate* case, 1911, says:

> "If the position of the Burlington is sound and is a precise expression of what our courts will hold to be law, then there is certainly danger that we never expect railroad rates to be lower than at present. On the contrary, there is the unwelcome promise . . . that they will continuously advance. In the face of such an economic philosophy, if stable and equitable rates are to be maintained, the suggestion has been made that it would be wise for the government to protect its people by taking to itself the property at present values rather than wait the day, perhaps 30 to 50 years hence, when they will have multiplied in value ten or twenty-fold."[5]

To remove land from rates, then, would be one way of prolonging the life of private initiative. The proposal ought, therefore, to appeal in logic to those persons who believe in the superior efficacy of this force in business. On the other hand, if private initiative should prove ineffectual in the management of the railways, and government ownership should become necessary and feasible, the accomplishment of this scheme would be a preliminary work of large import. None but the shallow propagandist can object on the ground that it would lessen agitation. Paradoxical as it may seem, to assume public ownership of the land of railways is a means by which complete ownership may be the more easily effected should it eventually prove desirable, and a means by which it may be avoided if private enterprise is in reality the more efficient force for running public utilities.

The other objection to public ownership is political patronage. To own the railways may be to build a political machine, it may result in the substitution of political competition for economic competition in choosing railway officials, and thus diminish efficiency. To own the lands of railways can have no such effect, for it does not carry with it any appointive power.

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[5] 20 I. C. C. Reps. 307, 337.

Purchase Value

It will be asked, What value of land is to be used in carrying out the proposal? The answer is present value. Past inequalities can hardly be remedied without creating others equally inequitable, nor would any other value be constitutional, for to make the plan retroactive would be to take property without due process of law.

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